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Original Articles.

RESULTS OF OVARIAN SURGERY.*

WITH FURTHER REPORT UPON INTRA-IMPLANTATION OF OVARIAN TISSUE.

A. PALMER DUDLEY, M. D.

Surgeon to Harlem Hospital; Professor of Gynecology, Post-Graduate Medical School and Hospital, and Dartmouth Medical College.

NEW YORK CITY.

It has become a well-established fact that the ovaries in women can be treated surgically, in an aseptic manner, almost with impunity, and that, after such treatment, they recover their lost function and continue to do their full duty in the human economy for many years. Abundant evidence of this fact is on record in medical journals of this country and Europe, published during the past fourteen years. Early in 1887, I began what was then experimental work in surgery on the ovary. At the present time it is no longer experimental. The results of that work have been published. (See bibliography.)

As the title of my paper indicates, it is not my purpose at present to ask you to listen to reports of detailed cases, in an effort to prove to you my previous statements, but to give you some of the results of such work that will be of interest—not from a statistical standpoint—but from my own individual cases. Others have added largely to the list of successes, especially Drs. Polk and Goffe of New York, and Dr Burrage of Boston, who, in a discussion before the Academy of Medicine, on February 7 of the present year, reported many interesting and successful cases of ovarian surgery. At that time I reported and showed histories for 182 individual cases in which I had performed consecutive conservative operations upon the uterine appendages, without the loss of a single case, and these not selected, but taken, in the parlance of athletics—"catch as catch can." I am now able to add to that number 8 cases, making in all 190 operated on, up to the present day, without a single failure. Although I have abstract histories of these cases, to call attention to them individually would weary you, and cause you to lose interest in my subject. I shall not attempt it, but shall merely describe in a general way some of the results I have obtained in such of the number as I have been able to trace the after-history of—which is not an easy matter when dealing with hospital patients. Among this number are six cases of intra-uterine implantation of the ovary, which I shall discuss later on. In nearly all of the cases, some other form of surgical work was performed besides that upon the ovary.

It must be borne in mind that only a very small number of the sum total of all cases for which one man is called on to make abdominal section, will be suitable ones on which to do conservative ovarian surgery. I have been fourteen years in finding the 190 suitable cases for such work in the sum total of all laparotomies I have made. It must be borne in mind that an operator is put to the test of deciding on the spot the question of suitability for such work. I have no doubt that many of the cases that I have passed by as unsuitable in the past, I could with my present knowledge of ovarian surgery have saved some portion of.

Many of you will express your disbelief in such work. My criticism of your opinion would be to ask you to place yourself in the woman's position. Would you desire to be totally unsexed? You would ask the question: What constitutes unsexing? My answer would be: Depriving you of any physical function with which nature endowed you. From such a standpoint I desire that you should criticise my work. In the results attending the same I shall offer descriptions of major cases where the patients have been for years chronic invalids and where the results of the work have been to restore not only health to the patients but normal function to the organ. Included in this number are cases in which the ovary has been completely buried in plastic exudate, in which the tube involved in the same has been completely occluded in its outer half; where the uterus has been displaced and firmly bound in such displacement; in fact, where every organ and function in the genital system of these women have been pathologic. It is nonsense for any man in the profession at the present time to say that because a woman's appendages are diseased she should therefore undergo hysterectomy, and forever after be what is commonly called an "it"; and I will offer, before I close, sufficient proof of the truth of my statement. The only difficulty in this field of work is the ability of the operator to determine which are suitable cases that come under his observation. Let me offer for your consideration the points that guide me in my selection of cases. I will divide them into two classes.

1. The age of the patients to be operated on; social position; previous family history; and patient's preference in the matter—the three former conditions being taken into consideration.

2. The diseased conditions associated with that of the appendages which I find upon opening the abdomen.

To return and give my reasons which govern my action for each condition mentioned.

As to the age of the patient, I would not dream of doing such plastic work on the ovaries of a patient who was nearing the menopause. It is only the young, or those hopeful of bearing children, that I would consider suitable for such work.

Social position would influence me materially. I mean by that, the hardworking, daily toiling woman is

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not as fit a subject for such work as the woman so situated in life as to be able to conserve her strength and, if necessary, to take a prolonged rest, in order to secure the best possible results from such work. The history of hereditary taint from syphilis, tuberculosis, or other diseases, liable to influence the result would deter me from such work.

The patient's preference in the matter would influence me considerably to depart from the previous position taken, providing her domestic happiness depended upon it.

The second consideration would be the diseased condition of the genital organs which I found, associated with that of ovarian disease. For instance, uterine gonorrheal infection still active, syphilitic infection still active, either secondary or tertiary, fibroidal conditions that would require such extensive myomectomy that the ultimate result would be a deformed uterus, and probably occluded tubes, resulting in peritoneal complications that would prevent the result we desire to obtain.

The first series of reasons I have given are more or less sentimental with me, which possibly those that listen to me would not indulge in. The second series are hard facts, which we meet with at the operating table and must decide on at the moment. Hence it is that occasionally our most sanguine hopes fail us, and the disbeliever who afterward gets the case is in a position to make it hot for the previous operator; but faint heart never won fair lady, neither will the disbeliever be able to win the argument respecting the results of ovarian surgery until he can do so from the basis of an equal number of cases, and their results at his hands. I started out to give you my results, and in my enthusiasm I have drifted somewhat from the subject, but before recording results, I will state that in each and every case of the 190 which I report, the work done upon the appendage was a surgical removal of some portion of it, and a repair of the structures allowed to remain, by suture. I have with me and will distribute drawings representing the average work. Those relating to implantation of ovarian tissue in the uterus will allow of description when I take up the discussion of that portion of the subject. I have previously made the statement that in many of the cases multiple operations were performed—other than those upon the ovaries—at the same time. This, as you can readily see, would be absolutely necessary as a part of the cure. My records show the following: Plastic work upon both ovaries, 128 cases; one tube and ovary removed, 60 cases; gonorrheal tubes bisected and one-half of each removed, 5 cases; vaginal section for drainage, 14 cases; kidney fastened, 4 cases; and hysterorrhaphy, 73 cases. The appendix was removed in 14 of the cases, curettage was done in 29, and cervix and perineum in 14. As a result of this work, and this is the point of my paper, I am able to report to you that of those cases I have been able to keep trace of, 137 were cured; 11 suffered some pain with menstruation and are therefore recorded as improved, leaving 42 unheard from after leaving my service. From this number, 148, I am able to report 23 cases of pregnancy with delivery at full term, and 5 cases of miscarriage; in all, 28 pregnancies, an average of about one in every five and one-third cases, which I am sure would have been much diminished could I have followed the after-history of all the cases I have operated upon. The sole object of this work being to preserve the ovarian influence and the function of menstruation to the woman, care must be taken to operate in such a manner that the circulatory and nervous supply shall not be cut off. I therefore take care to section the ovary lengthwise, rather than crosswise. In operating for the removal of cysts of considerable size, I do not hesitate to split the ovary in two, down to the hylum, but I take care not to sever the ovarian artery and nerve which transverses the ovary at this point. I invariably use very fine floss silk suture which can not be obtained from an instrument-maker, but which I purchase at the silk-embroidery counter of a dry-goods establishment. I do not hesitate to place several rows of this suture material through and through an ovary, always using a cambric needle. I never, under any circumstances, use catgut suture in the ovary. I do not subscribe to the use of the thermo- or galvano-cautery in the treatment of cystic degeneration, although I am well aware that it is employed by the most eminent of gynecologists in both France and Germany, because it is my belief that no man can tell just how far beyond the part touched by the cautery the heat will destroy the ovarian cells, and in this way cause large portions of the healthy ovarian tissue to become permanently injured. I prefer to open the cysts, curette out the cyst sac with a small sharp curette and then stitch the cavity up with fine suture. I have yet to see the first case of suppuration of the ovary follow such work, although, as I have previously stated, I made vaginal section for drainage 14 times. I am positive that the ovary heals kindly, having had occasion to reopen the abdomen on two occasions after such work was performed. In both of these cases I found the ovary perfectly healed. In one, which you will find note of in the reprints, the woman, after undergoing the second abdominal section, gave birth to a full-term healthy child. The case is a most interesting one, but it is already in print. Dr. Burrage, in his article, reported one of his cases as having become pregnant, although both tubes had been removed. This, although an unusual occurrence, is not by any means the first to occur. Robertson, in 1890, reported a case of pregnancy after double ovariotomy; in 1896, at a meeting of the American Gynecological Society, Dr. Gordon, of Portland, Me., reported a case, and Dr. Sutton, of Pittsburg, one, and in the discussion I reported a case of pregnancy after hysterectomy, which occurred in the practice of a German operator. The operator's name I am unable to give you, for I have lost the notes of the case. Vaginal hysterectomy was made, the tubes and ovaries were allowed to remain, as is done in many cases operated upon abroad. The broad ligaments, including the stumps of tubes, and ovaries, were brought into the vagina and fastened to the vault. The impregnation was a tubal one, which she carried six weeks, and he curetted the ovum from the tube dependent from the vault of the vagina, and from microscopic examination, recognized the chorionic membrane and a portion of the fetus. These reports, together with the 28 pregnancies which have followed in the wake of my operative work upon the ovary, seems to me to be sufficient evidence that the ovary, or healthy portions of it allowed to remain, if given half a show, will perform its function in a manner satisfactory to those interested. I am even prepared to go farther than that, with sufficient evidence, I think, to satisfy even the most skeptical, that ovarian tissue is capable, even of change of habitation, and still will not shrink from doing its duty. In August, 1899, I read a paper before the International Gynecological Congress, in Amsterdam, in which I reported several cases of transplantation of

ovarian tissue into the broad ligament and cul-de-sac of the vagina, successfully performed, notably by Drs. James H. Glass, of Utica, and Robert T. Morris, of New York. At the same time I showed drawings and described my method of procedure, in my first case of intra-uterine implantation of the ovary, which, so far as I had been able to learn up to that time, and in fact up to January 19 of the present year, was the first case so treated. At that time, Jan. 19, 1901, Dr. Morris, of New York, published an article read before the Society of Alumni of Bellevue Hospital, Dec. 5, 1900, in which he reports six cases of ovarian grafting. In the first case a small portion of ovary was transferred to the interior of the stump of the right oviduct. I sincerely desire the privilege of criticising the case, as well as the next following, from his published report, a copy of which I have present. This case, I find, together with Case 2, was published in his book, in 1897, and again referred to in his article on Dec. 5, 1900. The results savor so of incompatibility with any that I have been able to obtain that I desire to quote from them to some extent.

In Case 1, a small piece of the patient's ovary was transferred to the interior of the stump of the right oviduct. The patient became pregnant about a month after leaving the hospital, but lost a well-developed fetus by abortion the third month. This graft was placed in the stump of a septic tube of long standing, and still in four weeks' time she became pregnant. He saw the patient in May, 1900. She had ceased to menstruate, although only 26 years of age, without the record of a pregnancy following that of the first six weeks after the grafting. How does this compare with the statement made to me by the gentleman on May 13 last, at 10:30 a. m., that he thought his case had been one of extra-uterine pregnancy. Regarding the second case, a patient 20 years of age, who has an infantile uterus and rudimentary adnexa, neither of which are reported to have been removed. She received an ovarian graft in the fundus, as adjunct to her own ovaries. Are we therefore sure that the menstruation that appeared six weeks later was from the grafted ovary, or the influence of the work performed exerted in influencing the action of her own ovaries? I confess I am skeptical regarding both these cases. With respect to the grafting of ovarian tissue into the broad ligament near the horn of the uterus, which the Doctor reports as having been doing since 1899, I confess I have not resorted to it, neither can I see the utility of it, because of the dangers attending it. These are three-fold: 1, the possibility of grafting diseased ovarian tissue in a position where it could not be reached, except through another abdominal or vaginal section; 2, the development of an ovarian cystoma from such grafting of diseased ovarian tissue, and 3, the possibility of pregnancy, which, of course, could only be abdominal, cases of which we know are on record.

I prefer the intra-uterine implantation of the ovary, as first performed by me on May 24, 1899, and reported before the International Congress, at Amsterdam, in August of the same year; and I have the records of 5 successful cases performed since that time, all of which are now menstruating. Unfortunately, only two of the six cases are married women living with their husbands, two are widows, and two are single girls. As yet I am unable to report a pregnancy that I can verify. As I have modified the method of operation somewhat since my first published report, I shall only take the time to call to your attention the change in my method of operation. Instead of severing the ovarian tissue completely from its ligamentous attachment, and planting it in the center of the fundus, after removal of the Fallopian tube, I split the horn of the uterus and implant the ovarian structure, reduced in size to suit the occasion, but still attached to its own ligament. By this method the ovarian tissue is nourished by its own circulation until such time as collateral circulation shall give it a better supply. By this method the proper nervous supply to the ovary is not cut off, and should the ovarian tissue subsequently give trouble it is within the cavity of the uterus where it can be quickly reached with a sharp curette and removed without danger to the patient.

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DISCUSSION.

DR. A. GOLDSPOHN, Chicago—I am glad that Dr. Dudley has again spoken on the subject which he has repeatedly touched on heretofore. In my paper I cite him as one of the recent contributors in this work. The question is not altogether decided. One of the gentlemen in the discussion said he had done it, but had given it up. If such men shall be benefited by these publications, then it is necessary for us in publishing cases to be very particular in observing them and to give the exact details in order that they may carry conviction. I published ninety-seven cases of resection of the ovaries in my paper, the majority of which were carefully examined after an average period of nearly two years, and of the remainder repeatedly. Conclusions were arrived at from accurate statements of the patient in answer to specific questions. Thus, all unbiased parties can judge of the evidence themselves and from their own opinion of the value of the treatment. The Doctor suggests in regard to the indications for operations, that we should naturally consult the wishes of the patient and her general circumstances. That is true to a certain extent. But the physician is supposed to know best what is best for his patient. The only question that is not decided, from the pathological standpoint, is how far dare we go in saving ovarian tissue in cases of actual neoplasm. The universal opinion of all good men who have spoken on this subject is that it is a safe practice in all cases of dermoid cysts. But the question becomes more sensitive when we deal with actual proliferating glandular cystomata of the ovary. The majority of men specify simple, non-proliferating cystomata, not having any papillomata on the surface nor other evidence of malignant disease in the patient.

I make my incision precisely like Dr. Dudley's if there are a number of cysts or if they are deeply located. If single and on the surface, we can enucleate the cyst without incising. If there are multiple cysts it is better to make a longitudinal incision and dissect out the individual cysts or follicles. Any membranous edges of the wound should then be cut away and the wound united.

In regard to the suture material I must differ with Dr. Dudley. I would never use any suture material that is not readily absorbable; not because of its forming abscesses, nor because of any disadvantage in the primary result, but because of the bad secondary results from the introduction of a foreign body into living tissue to remain there indefinitely. There follows a throwing out of round cells, an attempt on the part of nature to carry on war, to eliminate the foreign body, by an extrusion of round cells which form connective tissue, and you have a cirrhotic ovary, a painful ovary. As we can now sterilize catgut perfectly, there is no objection to using it. Great care should be used in regard to how to suture. Avoid many knots. I generally begin at one end, make a continuous row of sutures, see that each one grasps deeply enough to stop the hemorrhage, and then return with a superficial row of co-

aptation sutures and tie to the original end. You have thus a minimal amount of foreign substance in the ovary, and only temporarily. I look at the thermocautery much like Dr. Dudley does. I have found that the cases suffered from amenorrhea sometimes for a long time after its use. Thermocautery should be used in operating through the vagina and where we are not absolutely certain that the field of operation and all the things coming in contact with it are practically sterile.

DR. J. RIDDLE GOFFE, New York City—There is no more important subject at the present day than conservative work upon the uterine appendages. Indeed, I go so far as to agree with a member of our profession who declared that the only excuse for the existence of a gynecologist was that he was able to do this kind of work. I go still farther and say that the *raison d'etre* of the gynecologist consists in his power to do conservative work and do it through the vagina. I prefer that route. The reason for declaring myself so positively is because I believe it important to preserve to the woman the faculty of ovulation and the ability to bear children. Some men go as far as to say that the ovary is not the woman and that it is better to get rid of it. I say that the ovary plays a large part in the woman's existence and the possibility of becoming a mother is an extremely important element in a woman's life. By this conservative work we are able to preserve for her the function of ovulation and the possibility of motherhood. Dr. Dudley reports 23 women who have become pregnant after this conservative work. These women were in the position where, if they had not been interfered with, they would have been sterile for the rest of their lives. Even if a woman does not become pregnant she is free from that nervous storm that so frequently follows total ablation of the appendages. The principal opposition to this is offered by the general surgeon, who thinks it is better to remove the appendages than to do conservative work and, as he says, not cure the case. That, however, is based on the hypothesis that we do not cure our cases, but as Dr. Dudley tells you, the majority of our cases are cured not only of their symptoms but are also placed in the position where they can go on with their menstrual functions, ovulation and child-bearing. This work involves curing the patient as well as the preservation of function. I have done about a hundred of these operations; eleven of these patients have become pregnant, two miscarrying. Many of them had been sterile for years. I make no distinction in regard to the social condition of my patients, but do conservative work on all of them. In stitching the ovary after exsection, I use silk and my results have been entirely satisfactory. Dr. Dudley, and the gentleman who preceded me, were both opposed to ignipuncture, but I have a patient now that was delivered of a child last September in whom I removed the appendages on the left side, punctured the right ovary seven times with a Paquelin cautery and shortened the round ligaments. She was a young woman, married seven years and never pregnant. Eighteen months afterward she gave birth to a fine baby. One such successful case is compensation for one hundred failures. Indeed, I am more proud of that case in my history book than a thousand ovariotomies.

DR. W. H. HUMISTON, Cleveland—I would like to ask Dr. Dudley in reference to so-called sclerocystic ovaries in neurotic subjects that finally suffer pain continuously without any of the ordinary symptoms of inflammation. I wish to know whether this class of patients can be restored by this method of operating.

DR. DUDLEY, closing—Regarding the possible fact that I might have been mistaken in my cases reported, I record the condition as compared with that when last seen. I do not mean to say that if they went out and ate heavily, or worked hard, that they would not have pain, the same as any other woman. If they got chilled during the menstrual period they would have pain. I agree with Dr. Goffe in what he says, although I have not operated so many times as he through the vagina. The fact has been that, in the cases I have operated on in this manner, they have had so many things the matter with them that I chose to do the work through the abdomen rather than through the vagina. In these cases I was able to remove the appendages and do multiple operations. Regarding the number of pregnancies, I said I had records of 28 pregnancies, 5 miscarriages resulted, and 23 were delivered at full term.

Regarding the sclerocystic ovary, I never operate on it. These ovaries are pre-eminently diseased, and in one of the six cases I implanted, I think the failure to get a good result was because of the fact that the only ovarian tissue I had was a half of one ovary (the other having been removed years before), and that was sclerotic. This lady suffered from intrauterine pain. I would bar such an ovary from such work. An ovary which shows an absence of its function by the absence of scars, is not suitable for such work. A man is put to the test at the operating table.

ELIMINATION OF PERITONEAL INFECTION AND PREVENTION OF SURGICAL PERITONITIS.*

JOHN G. CLARK, M.D.

Professor of Gynecology in the University of Pennsylvania. Assisted by Dr. Charles Norris.

PHILADELPHIA.

The physiologic, anatomic and pathologic laboratories are scientific workshops from which both the physician and surgeon may constantly derive points of the greatest value in the advancement of his science. In fact, the remarkable evolution in medicine and surgery of the past decade is largely based on principles established and accurately tested in the laboratory. Instead, therefore, of the laboratory archives being mere repositories of dry scientific facts, they may be of absorbing interest and incalculable value when carefully scanned by the practical eye seeking suggestions which may be applied in everyday medical and surgical work.

For the last six years all investigations upon the functions and anatomy of the peritoneum have been of constant interest to me, for upon the facts established in these researches we are justified in reversing some of the apparently well-grounded principles in surgery. In 1896, as a result of the combined study of seventeen hundred abdominal section cases, and the review of the literature bearing on the structure and function of the peritoneum, I took radical ground against abdominal drainage as then generally employed, and advocated certain measures which were in direct opposition to principles generally in vogue.

Briefly stated, I strongly favored the thorough irrigation of the abdominal cavity at the completion of an abdominal operation, to remove as far as possible all debris, blood and infectious matter, and then the leaving of a considerable quantity of salt solution—0.6 per cent—in the peritoneal cavity to disseminate and promote rapid absorption. These two terms, "disseminate" and "promote rapid absorption," were radically combated by several writers, for they appeared to be not only unsurgical, but positively dangerous especially when coupled with the postural method of drainage which I then advocated. In other words, the teacher of the past had largely been in favor of a dry peritoneal toilet, and the liberal use of drainage through glass tubes, gauze, etc., whereas this meant the complete reversal of these principles for a very wet technique and the dissemination of the peritoneal debris. Five years have passed since my publication, and from practical experience, laboratory investigations and study of autopsy records, I feel perfectly convinced of my position, and upon the

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basis of these studies I now reiterate these statements and will detail the various lines of work which sustain these principles.

I shall merely epitomize some epoch-making points in the anatomy, physiology and pathology of the peritoneum, and then consider in greater detail a most interesting research on the action of streptococci upon the peritoneum, which will largely be applied in sustaining my position concerning the natural peritoneal method of drainage.

IMPORTANT EPOCHS IN THE ANATOMY, PHYSIOLOGY AND PATHOLOGY OF THE PERITONEUM UP TO 1899.

1874-1876: Histology of the peritoneum described by Rindfleisch, Bizozzero, Tourneux and Paladino, 1883; Ranvier, 1891; Kolossow, 1892; Muscatello, 1895; Byron Robinson.

1876 (Wegner): The peritoneum has an enormous absorbing function, taking up in an hour 3 to 8 per cent. of the entire body weight, as confirmed by subsequent investigators without exception. Through this function the peritoneum is protected against infection.

1896 (Grawitz): In general the statements of Wegner were sustained and he reached the conclusion that: "The introduction of pus-producing cocci into the normal peritoneal cavity produces a purulent peritonitis: 1, if the culture fluid is difficult of absorption; 2, if irritating material is present which destroys the tissues of the peritoneum, and thus prepares a place for the lodgment of the micro-organisms; 3, a purulent peritonitis will certainly be produced if a wound of the abdominal wall is present which forms a nidus for the infectious process." These views were subsequently sustained by Bartscher and Veitzel, 1888; Rinne, 1889; Waterhouse, 1890; Halstead, 1891; Walthard, 1892; Silberschmidt, 1894; Tavel and Lanz, 1893; Wieland, 1895.

1889 (Pawlowsky): Radical views against Grawitz's conclusions were taken as a result of his experiments. A deadly peritonitis may be induced by comparatively small doses of virulent pyogenic bacteria injected into the peritoneal cavity, the lethal effect being still more pronounced under the conditions last named by Grawitz.

1890: Reichel, in endeavoring to settle the controversy between Grawitz and Pawlowsky, reached the conclusion that the infection depends on the virulence of the micro-organisms. The peritoneum may free itself of bacteria of milder infectious properties, but virulent organisms may produce lethal effects. This was sustained by Burginsky, 1891; Alex. Fraenkel, 1891; Kraft, 1891.

1894 (Issaeff): This investigator removed, from time to time, through capillary tubes, fluid from the peritoneal cavity, infected with cholera bacilli, and discovered that shortly after the inoculation the fluid was very poor in leucocytes and the bacteria flourishing; later, however, there was a reversal of this order, the leucocytes gaining the ascendency, and the animal recovering. This was confirmed in a similar research on the typhoid bacillus by Pfeiffer and Kolle, 1896.

1895 (Muscatello): Fluids and solids may pass through the endothelial layer of the peritoneum, the fluids in many places (Recklinghausen, Starling, Tubby, Orlow, Heidenhein, Adler and Meltzer), the solid particles only through the spaces in the central tendon of the diaphragm.

Minute solid particles are carried in an incredibly short time from the peritoneal cavity through the diaphragm into the mediastinal lymph-vessels, and glands, and thence into the blood circulation, by which they are distributed to the abdominal organs, to appear later in the collecting lymph-glands of these organs.

The leucocytes are largely the bearers of foreign bodies from the peritoneal cavity, through the diaphragm into the mediastinal lymph-vessels, and thence into the blood circulation. Large quantities of fluids may be absorbed by the peritoneum in an astonishingly short time.

There is normally a force in the peritoneal cavity which carries the fluids and foreign particles toward the diaphragm, regardless of the posture of the animal, although gravity can greatly favor or retard the current.

Muscatello's experiments confirmed by Byron Robinson, Clark, and others.

1897: Bordet, in testing the effect of Marmorek's antistreptococcic serum in the peritoneal cavity, discovered that streptococcic infection, when not interfered with, is accompanied by the following phenomena: 1. There is a decrease in the number of leucocytes, but within an hour an increase begins, and the polynuclear cells are markedly in evidence. Streptococci decrease in number by being taken up by the leucocytes (phagocytes). The more vigorous streptococci form a repellent zone about themselves and begin to multiply enormously. Six or seven hours later both leucocytes and streptococci occur in myriads, but the leucocytes do not contain streptococci, and many appear impaired or degenerated. The animal dies through ascendency of the streptococci. This was confirmed by Wallgren, in 1899.

Wallgren[1] has taken up the investigation of streptococcic infection of the peritoneum, following the same line of experimentation as Bordet. His work appears to have been most thorough, and the various phenomena transpiring in the course of the infection have been so minutely and vividly described as to give his research the stamp of great accuracy. His article is very extensive, consisting of notes and comments on a long series of experiments. In the following review I have greatly epitomized his statements, endeavoring, however, faithfully to preserve their true sense.

The normal peritoneal lymph contains a few endothelial cells and a considerable number of white blood-corpuscles. The latter are mostly mononuclear leucocytes. Occasionally a polynuclear cell is seen, which, however, is considerably smaller than the mononuclear. Immediately after the peritoneal inoculation large numbers of streptococci may be found in every cover-glass preparation, but within a short time they begin to decrease rapidly in number, and later many cover-glasses may be passed in review before a single streptococcus is found. This change is not solely due to the deportation of the micro-organisms from the peritoneal cavity, but to the destruction of myriads within the cavity.

Notwithstanding this decrease, many of the most active and strongest bacteria still survive upon the peritoneal surfaces. After the first hour those remaining are usually found in the form of diplococci or very short chains. They then begin to develop and to form vigorous growing, and in some instances long chains of bacteria. About this time, also, a peculiar zone or halo develops about the streptococci, which has a vigorous repellent or destructive influence upon the leucocytes—negative chemotaxis.

In autopsies on animals dying twenty hours after the injection, large numbers of streptoccoci in active growth were found in the peritoneal cavity. The cyclical events

1. Ziegler's Beiträge, vol. xxv., p. 206.

in the growth of the streptococci are influenced by their own virulence, the activity of the leucocytes as phagocytes, and the absorbing ability of the peritoneum.

Shortly after the intraperitoneal inoculation the leucocytes which are largely of the mononuclear type collect in groups about the streptococci and develop an intense phagocytic action, and not only the degenerate and weak, but also the strong growing cocci are taken up. This phagocytosis in the peritoneal streptococcic infections is looked upon by Wallgren as a beneficial process, and may be taken as an evidence of protection or a defence of the peritoneum against the further multiplication of the micro-organisms. Within a short time these mononuclear leucocytes, laden with their streptococci, almost completely disappear, and then for a short time the peritoneal fluid becomes poor in leucocytes—leucopenia. This decrease in the number of cells, according to Pierallini, who worked under the guidance of Metschnikoff, occurs after the injection of all fluids into the peritoneal cavity, and is especially pronounced after the injection of physiologic salt solution. According to Metschnikoff, this phenomenon is due to the destruction or solution of the leucocytes—phagolysis. Durham, on the contrary, is of a different opinion, for he believes that the leucocytes become adherent to the peritoneal surfaces. The few mononuclear leucocytes which remain within an hour generally contain altered streptococci, while the free streptococci are in large part well preserved. After one hour the few mononuclear leucocytes which remain are usually degenerated, and contain vigorous-appearing streptococci. About this time the polynuclear and polymorphonuclear leucocytes begin to appear in the peritoneal cavity in large numbers. If the dose of streptococci is large or the micro-organisms are virulent, this phenomenon appears quicker than if the dose is small or the toxic action is attenuated. In the presence of the streptococci these new leucocytes show the same intense phagocytic tendencies as the mononuclear cells, and at once begin actively to take them up.

Six hours after the injection the number of these leucocytes increases markedly, but a multiplication of the streptococci occurs almost in an equal ratio. By this time the bearing of the cells toward the micro-organisms has, however, changed, for now these contestants exist in separate groups, and only here and there are leucocytes found containing streptococci. This cessation of the phagocytosis, at least in the greater part, is due to the fact that the streptococci, through their growth and evolution, acquire the ability to repel the leucocytes—negative chemotaxis.

As an evidence of this negative chemotaxis, the streptococci begin at this stage to show a faint enveloping zone or halo. As time passes the streptococci continue to increase both in virulence and numbers, while in nine hours after the injection the multiplication of the leucocytes is at a standstill. As may naturally be inferred, the animal now begins to develop fatal symptoms.

While in the first six-hour experiments the leucocytes were well preserved, after nine hours marked signs of degeneration were noted, consisting in the disappearance of the cell granules and alterations in the nuclei, in the complete destruction, in some instances, of the cells, and in their coalescence in groups. In a still later stage of the infection the peritoneal fluid becomes poorer and poorer in leucocytes, while the streptococci markedly increase in numbers, and by the time death occurs scarcely one well-preserved leucocyte is found. Likewise, the red blood-corpuscles, which are present in greater or less numbers in the early stage of the infection, have, to a large extent, disappeared or show signs of degeneration.

Wallgren summarizes his most interesting observations in the following conclusions: Small doses of virulent streptococci injected into the peritoneal cavity may, without any special predisposition on the part of the animal, produce a deadly infection. The peritoneum may free itself of a minimum dose of streptococci although the abdominal wall in the immediate neighborhood of the injection is infected. This wound infection plays no active part in the production of the peritonitis. The protection of the peritoneal cavity depends on the activity not only of the leucocytes normally contained therein but on those escaping into the peritoneal cavity, and to a certain extent also upon the endothelial cells of the peritoneum. The leucocytes combat the streptococci through their phagocytic action, through their degeneration products, and possibly also through their secretions—alexins. Phagocytosis occurs early in the infection, but in the latter stage, when the streptococci have acquired the ability to repel the leucocytes, it almost disappears; later it may reappear in the stage when the leucocytes are being destroyed. In the presence of streptococci of decreased virulence phagocytosis progresses without interruption so long as any micro-organisms remain in the peritoneal cavity. Streptococci may destroy the leucocytes. This process manifests itself through the alteration and disappearance of the cell granules of the polymorphonuclear and polynuclear leucocytes. The destructive action appears most marked in the cells which enclose streptococci and about the streptoccocci most numerously surrounded by these granules. So long as streptococci may be demonstrated in the peritoneal cavity the majority of the leucocytes are of the polymorphonuclear and polynuclear types, although for a short time, immediately after the injection, the leucocytosis consists of the mononuclear type.

In abstracting the points from Wallgren's research which may serve as surgical finger-boards, I consider the following the most important:

1. Great decrease in the number of micro-organisms within an hour, both through their intraperitoneal destruction and through their rapid absorption into the general system where they are dealt with. There is, therefore, no possibility of limiting septic matter through gauze or glass drainage to any free surgical field within the abdomen.

2. Vigorous streptococci which remain behind develop within six hours a repellent or destructive qualtiy for leucocytes, and the lethal fight is therefore inaugurated and well under way before drainage, as ordinarily employed, can possibly exercise any beneficial action. In many cases, therefore, in which drainage is employed, the patient recovers in spite of and not because of it. To assist this eliminating function of the peritoneum the liberal infusion of salt solution is invaluable.

NATURAL METHOD OF DRAINING THE PERITONEAL CAVITY.

As a result of a critical study of Muscatello's most interesting research on the transportation of granules from the peritoneal cavity, which was supplementary to Wegner's investigations concerning the great absorbing function of the peritoneum, I suggested in 1896 a postural method of draining the peritoneal cavity. This consisted in leaving a liter of salt solution in the peritoneal cavity at the completion of the abdominal opera-

tion, and then elevating the foot of the patient's bed for twenty-four hours with a view to hastening absorption and thus preventing the stagnation of fluids in the peritoneal cavity. After I had made this suggestion I felt for a time some little trepidation as to its ultimate results, for although I had most efficiently tested it in very severe cases before offering my observations for publication, I nevertheless had some misgivings lest a more extensive experience with such a radical departure might prove it to be disastrous in some cases.

Although at the present time I seldom use the elevated posture I am strongly convinced that no danger is entailed by its use, for I have never seen a post-operative complication which I felt was in the slightest degree attributable to this elevation of the pelvis. My reasons for now leaving the patient in the prone position are that the absorption is almost as rapid, and the churning of the intestines about in the saline fluid after the operation facilitates the distribution of the debris and, therefore, it is more quickly and effectively eliminated.

Another advantage is that the intestines and omentum are floated out into the normal positions. Since the use of peritoneal infusions I have never had a case of post-operative obstruction.

Without qualification, therefore, I am now prepared to say that the routine use of normal salt solution in the peritoneal cavity, under the conditions which I have advocated, is not only free from danger, but is of the greatest value, both as a life-saving measure and as a prophylactic against general or local peritonitis.

TRANSPORTATION OF SMALL GRANULES FROM THE PERITONEAL CAVITY.

Since the publication of my first article, in 1896, I have lost no opportunity to make observations on the method of peritoneal absorption, and lately, in connection with my assistant, Dr. Charles Norris, have carried out a series of experiments to confirm Muscatello's conclusions.

For this purpose we have used carmin, India ink and ultramarine granules, and our results are in entire accord with Muscatello's statements as to the rapidity of transportation of granules from the peritoneal cavity and their method of elimination.

We have found the route of transportation to be the same as that described by Muscatello. Shortly after the injection of the black or red granules the central tendon of the diaphragm, which normally has a ground glass appearance, is intensely colored through the deposition of the granules in the diaphragmatic lymph spaces. From these spaces they are transported through the anterior mediastinal lymph channels, and thence through the thoracic duct, to the vena cava and the right heart. From the heart they are distributed through the blood current, first to the lungs, and then to the liver, spleen, kidneys, intestinal tract, and many of the bodies are also deposited in the bone marrow. During the first hours of transportation, the granules are carried as free bodies by the lymph currents; later, however, they are largely contained in polynuclear leucocytes which may be distended almost to the bursting point.

Our investigations have been conducted with a view to discovering the ultimate disposal of these foreign bodies, for we believe the fate of micro-organisms under similar conditions must be analogous.

In the distribution of the blood the lungs are the first organs to catch a considerable quantity of the granules. So far as I know, investigators have not called especial attention to this point.

The smaller granules pass through the pulmonary capillaries and thence to other organs, but a large number are stopped by the alveolar capillaries and are either deposited in the bronchial lymph glands, or, as we believe, are largely thrown out into the alveoli.

In our investigations we have been struck constantly with the presence of granules in the alveoli, which leads us to believe that these may be common points of exit from the blood for minute foreign bodies and micro-organisms.

The next organ to take up large quantities of foreign bodies is the liver. Here we have been able to trace some granules through the hepatic artery into the capillaries and thence into the biliary ducts, and finally into the gall-bladder. A considerable number of bodies appear also to be expelled through the capillaries of the villi into the intestinal tract, while a considerable number are eliminated through the kidneys.

As to the rôle played by the spleen, we have not reached satisfactory conclusions. We have, however, found that a large number of granules are deposited in the bone marrow.

In all experiments we have examined the marrow of the femoral bones, and in almost every instance, after a few hours, we have found some of the smaller granules in this tissue. In one rabbit the carmin granules were found in this situation within five hours after their deposition in the peritoneal cavity.

I shall not attempt to detail our experiments in this paper, but will make the preliminary statement that the foreign bodies are found, within a very few hours, generally distributed throughout the organs of the body in the following order: In the lungs, then in the liver, spleen and gastro-intestinal tract, then in the kidneys, and finally in the bone marrow and in the lymph glands and dependent parts of the body.

From this investigation we conclude that the lungs, liver, intestines and kidneys are normal points of exit for minute foreign bodies, and under the head of foreign bodies we include all granular debris and micro-organisms left in the peritoneal cavity.

It may appear to some of my readers that the peritoneal infusions of normal salt solution, in cases in which infection is suspected, is to condemn the patient to certain septicemia or even pyemia, through the wide distribution of the micro-organisms. On the contrary, we believe this very action is prevented.

I base my argument on the following proposition: Given a minimum amount of peritoneal infection, it is infinitely better to distribute it at once before the micro-organisms undergo manifold sporulation than to hope for its elimination after it has gained virulent headway through stagnation or clinging to operation fields within the abdominal cavity. By at once distributing a minimum amount of infectious material generally throughout the body, the micro-organisms are promptly placed in the most favorable situations for their destruction and elimination.

Whether we accept the alexin or the phagocytic theory concerning the destruction of micro-organisms, is immaterial, for in either case it is better that the micro-organisms be quickly deposited in the places where these two factors are dominant than to be left behind in the peritoneal cavity, into which the leucocytes and the serum more slowly flow.

ACTION OF STREPTOCOCCI ON THE LUNGS, LIVER AND KIDNEYS.

In my review of the literature bearing on the action of pyogenic micro-organisms when injected into the blood currents, I find some very interesting articles concerning the effect of the streptococci on the lungs, liver and kidneys. As the streptococcus is one of the most pathogenic micro-organisms with which the surgeon meets, and as these three organs are especially involved in the natural peritoneal method of drainage, these recent researches may be most opportunely quoted at this point.

An investigation by Silfvast,[2] on the action of streptococci upon the lungs, is especially interesting. In general, his conclusions are that the lung of the rabbit is relatively resistant to the action of streptococci either injected directly into the trachea or inhaled, and, further in line with our work, that the lungs are still more resistant to the action of streptococci when carried to them by the blood curents. Both with active growing streptococci and with their toxins there is at once a reaction on their entrance into the lungs, as evidenced by a diapedesis of leucocytes, light shedding of the alevolar epithelium and extravasation of lymph. Within fifteen minutes after the intravenous injection, large numbers of leucocytes appear in the alveoli, which at once take up the streptococci and then only a few extracellular micro-organisms are seen. After the second day the streptococci appear degenerated and begin to disappear. In twelve days only a granular debris remains, consisting of degenerated organisms. At this time cultures are negative, and the micro-organisms can not be discovered in microscopic sections. Streptococci of decreased virulence are much more rapidly destroyed, and within twenty-four hours only a few isolated, irregular, badly staining forms are found.

The cells making up the debris in the alveoli consist of epithelium, and polynuclear and large mononuclear leucocytes may also be found in the bronchial lymph glands, where the cocci likewise appear to be destroyed. The largest number of streptococci are destroyed in the lungs, while a certain number are carried away by the lymph channels.

From these experiments it is seen, as stated by Silfvast, that the lungs are comparatively resistant, especially to micro-organisms brought to them by the blood streams. This action is in entire accord with my own observations, for in a series of over three hundred cases in which I have used large quantities of salt solution in the abdominal cavity, which has been rapidly absorbed and quickly poured into the blood streams, and thence to the lungs, I have never seen a serious pulmonary attack, either of bronchitis or pneumonia; in fact in this entire series I have never seen a case of pneumonia. What better practical demonstration can be given of the harmlessness of peritoneal infusions on the lungs?

If as is unquestionably the case micro-organisms pass through the capillaries of the lungs to other organs, what is their action upon these organs? Again, interesting experiments are at hand which give us some insight upon this point.

Von Bonsdorff[3] has carried out a series of experiments to discover whether micro-organisms are excreted by the urine and what action they have upon the kidneys. His results, briefly, are as follows: When large doses of streptococci are injected into the ear vein of a rabbit the bacteria are not at once excreted by the urine. In twenty-four experiments six rabbits showed foci of bacterial nephritis consisting of isolated inflamed points in the cortex. These areas surrounded the walls of the blood-vessels, from whence small foci of bacteria spread outward and involved the surrounding tissue. Except in these cases this investigator says the changes in the kidneys incited by the streptococci are comparatively slight. Besides a very slight grade of cloudy swelling, there was, in some instances, a limited shedding of the epithelium. In lighter infections a slight degeneration of the epithelium was noted. Simple round-cell infiltration or well-marked general nephritis was never observed.

When cultures of streptococci were obtained they were discovered on section in the glomeruli, less frequently in the intertubular capillaries, especially of the cortex, and very seldom within the uriniferous tubules. In the intracapsular space around the Malpighian bodies no bacteria were found.

From these investigations, which as yet are not completed, it would appear that the streptococci are not excreted by the normal kidneys, and that they occur in the urine only after structural lesions are induced. As an incidental remark I may say that other investigators have claimed that micro-organisms are quickly excreted by the normal kidneys. While my investigations are entirely too meager to decide this point, I incline to the latter view. Whether they are actually excreted or destroyed in the kidneys, and then excreted, matters little.

The chief point in this research, which is of value in my discussion, is that notwithstanding the fact that large doses of streptococci have been introduced into the blood, comparatively slight structural lesions have occurred in the kidneys in the large majority of cases.

Björksten[4] has carried out similar investigations to discover the action of streptococci upon the liver. In his experiments he has injected cultures of toxin directly into the liver and has studied the action of the micro-organisms when deposited in this organ through the blood currents. As would naturally be expected, injections directly into the liver usually cause marked reaction and the animal finally dies as the result of infection. The animal, on the other hand, stands intravenous injection very much better. The results of the latter injection were shown in a general wasting of the animal rather than in local disturbances of the liver. In autopsies on animals dying during the course of the infection, the liver appeared to be somewhat over-filled with blood, and on its surface small yellow spots were noted. The peritoneum appeared perfectly normal, sometimes, however, somewhat moistened and glistening. Until the tenth day streptococci can be, as a rule, obtained in culture from the liver. Many times, however, the cultures from the bile were sterile. After thirty days the cultures both from the liver and bile were invariably sterile.

This investigation is entirely too limited to arrive at any sweeping conclusions in our work, but it appears to conform in a general way with the foregoing investigations upon the lungs and kidney. If, therefore, I were to formulate a provisional working statement from these investigations, and from my practical experience in the use of saline injections into the peritoneal cavity, it would be as follows: The normal lungs, liver and kidneys may withstand and eliminate comparatively large quantities

2. Die Wirkung der Streptokokken und ihrer Toxine auf die Lungen; Ziegler's Beiträge, vol. xxv, 1899.

3. Experimentelle Untersuchungen ueber die Ausscheidung der Streptokokken durch die Nieren; Ziegler's Beiträge, vol. xxv.

4. Die Wirkung der Streptokokken und ihrer Toxine auf die Leber.

of infectious matter when carried quickly from the peritoneal cavity to these organs. It is the continued action of infectious matter, carried hour after hour from a generating focus in the peritoneal cavity which works destructively on these organs, and secondarily on the general system.

PATHOLOGIC CONDITIONS ARISING SECONDARILY FROM PERITONITIS.

In order to reach some conclusion as to the action of infection matter upon the lungs, liver and kidneys, when transported from the peritoneal cavity through the diaphragmatic lymph spaces to the general blood currents, we have analyzed the autopsy notes in thirty cases of peritonitis. These notes have been taken at random from the files in the pathologic laboratory of the Johns Hopkins Hospital, and include cases arising from typhoid perforations, perforations of gastric ulcers, post-operative peritonitis following such operations as salpingo-oöphorectomy, appendectomy, gastro-intestinal anastomosis, etc. In the majority of these cases we have found characteristic conditions within the lungs which are in accord with those noted by Silfvast in his experimental work, and those found in our own experimental investigations.

Our attention had been especially called to the appearance of the lung in rabbits, killed at various stages of the experimentation after the injection of foreign bodies. On comparing these observations with the autopsy records in the peritonitis cases, we found almost identical conditions. These changes are also in accord with those described by Silfvast in the preceding pages. In many autopsy records of patients dying of peritonitis, the notes on the histologic examination of the lungs are follows: "Blood-vessels enlarged and engorged, cells of air sac somewhat thickened and edematous; in many places alveoli are packed with coagulated fibrin, polymorphonuclear leucocytes, large mononuclear leucocytes, epithelial debris and more or less red blood-corpuscles. Also, in many instances, bacteria are found in large numbers free in the alveoli."

In some cases, notwithstanding the fact that large numbers of micro-organisms have been poured into the general system through an extensive peritonitis, the kidneys and liver appear frequently to be comparatively normal and, structurally, are slightly or not at all impaired.

No doubt those who dissent from my theory as to the natural method of eliminating peritoneal infection may see in these notes an argument against it. As I have already stated, however, it is to prevent this very condition that I have advocated the liberal use of salt solution in the peritoneal cavity. My object in using the peritoneal infusions is to free the peritoneal cavity as rapidly as possible of a minimum quantity of infectious matter and debris, which the lungs, liver, intestines and kidneys may eliminate without functional or anatomical disturbance, rather than to trust to inefficient surgical drainage, or to wait until this minimum number of organisms have generated into myraids which are poured into these eliminating organs day after day,, and thus ultimately so impair them as to destroy the patient's life. With the use of the salt solution in the way which I have described, it does not produce any serious complications or after-effects, as shown by the long series of cases of which I now have careful notes. In one hundred and fifteen operations, performed at the University and Presbyterian hospitals, only three deaths occurred. Of the fatal cases one patient was practically moribund from purulent peritonitis arising from a perforated appendix, when she was taken to the operating-table, and the operation was only performed as the last possible chance of saving her. That the salt solution did neither good nor harm in this case is certain, for the patient died within twenty minutes after leaving the operating-table.

The second case, of extensive cancer of the uterus, operated upon one day, died within twenty-four hours from pulmonary embolus. In this case no salt solution was left in the peritoneal cavity, on account of the open pelvic diaphragm produced by the hysterectomy.

In only one case of this series in which salt solution was used could there be any question as to its rôle as a provocative factor in the ensuing peritonitis. This was a large myomatous tumor extensively adherent to the bowel. During the operation the bowel was lacerated in two places but was carefully sutured. Only a small amount of salt solution was used in this case. Within twenty-four hours the patient became excessively tympanitic and died shortly afterward. Unfortunately, no autopsy was permitted in the case and we therefore do not know the real cause of death. From the rapid collapse and excessive tympanites, it is possible that the intestinal sutures gave way or that there was a fulminating streptococcic infection. In all of the remaining cases quantities of salt solution varying from 500 to 1,300 c. c. were left in the peritoneal cavity.

A recent report by Dr. Hunter Robb of 114 abdominal sections without a single death goes far to prove two points, at least, upon which I insist, first, drainage is superfluous in all but a minimum percentage of abdominal section cases; and second, to say the least, peritoneal infusion and irrigations, even if not beneficial, are not harmful, as insisted upon by many opponents of this method. Dr. Robb and Dr. Griskey were the first investigators in this country to systematically study the bacteriologic side of drainage, and as a result of their work they insisted that the employment of glass drainage-tubes was dangerous rather than beneficial. In the final steps of his technique, Robb says: "After every abdominal section the abdomen is thoroughly washed out with sterilized salt solution, after which from 300 to 500 c.c. of salt solution are left in the abdominal cavity and the patient is placed, with the head low, in the postural position for drainage for twenty-four hours." In all of his 114 cases thus treated the patients recovered. Such a splendid series of cases as this is a very telling argument in favor of the points which I am endeavoring to establish.

ADDITIONAL ADVANTAGES OF PERITONEAL INFUSIONS.

If the salt solution has no deleterious or harmful effects, what are its other beneficial effects?

These I may briefly state as follows: 1. In case of shock from loss of blood it is one of the best general stimulants. Time and time again, in operations where the pulse has been as high as 160, and weak and thready at the completion of the operation, I have seen it drop to 120 or lower within three hours, and become full and regular.

Another great advantage to the patient, derived from its use, is the large increase in the urinary excretion. In 1896[5] I described a method for the prevention of thirst after abdominal operations. Briefly stated, this consisted in the high injection into the sigmoid flexure, with the patient in the Trendelenburg posture, of one liter of salt solution. In comparing

5. Am. Jour. of Obst., vol. xxxiv., No. 2, 1896.

two series of cases, one with and one without the saline enemata, I found a striking quantitative difference.

The urine of the cases in which the saline solution is given usually presents a normal color, and where more than 900 cubic centimeters are voided in the first twenty-four hours it may even have the clear, limpid appearance of a urine deficient in solid constituents.

The average daily quantity of urine excreted for the first seven days after operation, in the two series of 100 cases each, is as follows:

With Saline Enemata.		Without Saline Enemata.	
First day.	752 cubic cm.	First day.	481 cubic cm.
Second "	626 " "	Second "	505 " "
Third "	605 " "	Third "	498 " "
Fourth "	635 " "	Fourth "	550 " "
Fifth "	595 " "	Fifth "	654 " "
Sixth "	672 " "	Sixth "	656 " "
Seventh "	646 " "	Seventh "	591 " "

The first series of 100 cases shows an average of 752 cubic centimeters at the end of the first twenty-four hours, while the second shows but 481 cubic centimeters.

A point which I also emphasized was the equalization of solid constituents of the urine. Dr. W. W. Russell had previously called attention to the frequency of vesical irritation in post-operative cases, and attributed it to the retention of small quantities of highly concentrated urine in the bladder, which possessed more than a normal amount or organic elements with a greatly decreased watery diluent.

After the adoption of the method just referred to, vesical irritation became much less frequent and catheterization after operation was necessary in less than one-half of the cases. The specific gravity of the urine dropped to normal, whereas, in the cases without enemata, it ranged between 10.25 and 10.30. This study demonstrated that the quantity of urine can materially be increased by saline enemata. Since then I have made similar analyses of the urine in cases after saline infusions into the peritoneal cavity, and find that the quantity of urine is likewise increased and that vesical irritation is greatly alleviated or almost unknown in these cases. What practical conclusions may we draw from these phenomena?

Flexner has shown, in a magnificent research on terminal infections, that many patients with chronic disease, especially of the kidneys, die of some insignificant terminal infection, and that the primary disease itself really does not terminate their lives. If, therefore, in abdominal cases, the kidneys are also impaired, as is not infrequently the case, especially in chronic pelvic inflammatory cases and large tumors, the increased irritability from concentrated urine, combined with micro-organisms, which may be introduced or left in the peritoneal cavity and either they or their toxins will inevitably be carried, regardless of any measure which may be employed to prevent this action, into the general system, the safety of the patient may be endangered from these terminal infections.

To increase, therefore, the functional activity of the kidney and prevent the concentration of the urine, is, unquestionably, a very potent factor in assisting and hastening the recovery of the patient. This, without doubt, is promoted by the use of these saline infusions into the peritoneal cavity.

One of the very gratifying results of this method is the lessening of the severe thirst from which the majority of abdominal section cases so severely suffer. Many times, after the use of large quantities of salt solution, the patient will go as long as twelve hours without asking for water. In some instances, there is more or less thirst, but seldom, if ever, is it so severe as in cases treated in the older way.

A factor which largely promotes peritoneal absorption and facilitates the absorption of lymph in the peritoneal cavity, is active peristalsis. I hold, therefore, that after operation the more vigorous the peristalsis the more certainly will our patients be protected from infection. After the use of salt solution as I have described, I find that the bowels are much more easily acted upon by laxatives. Following the suggestions of Newman and Ramsey, I make it a rule to administer the cathartic the night of the operation, and if the bowels have not acted the next morning, to give a simple enema, and if not effectual, follow it by a more active stimulating one. Under this plan, marked tympanites is a very rare complication after operation.

There is one objection which may be offered to the saline infusions, but in no case have I found it to be serious. Within the first twenty-four to thirty-six hours after operation, patients not infrequently complain of distress over the diaphragm, similar to a pleuritic pain. There may also be a tendency to gastric and colonic distention. In no instance, however, have any of these conditions been obstinate or of long standing and they invariably have passed off without ill effects to the patient.

To offset the discomfort produced by the diaphragmatic pain, my rule is to strap the base of the chest, as soon as the patient complains of it, with a 2-inch strip of adhesive plaster, in order to limit the diaphragmatic movements. This will frequently give almost immediate relief. I attribute this pain to a simple increase in functional activity of the absorbing areas of the diaphragm. It is certainly not due to pleurisy or peritonitis, for it has invariably passed off in a short time, and in no instance have signs been discovered indicative of either of these conditions.

In order to further supplement the action of the salt solution in the peritoneal cavity, it is my invariable rule in all abdominal section cases to use the saline enemata while the patient is still in the Trendelenburg posture.

The chief tenet in my argument is based upon the enormous and rapid absorbing function of the peritoneum, which absolutely precludes the possibility of limiting to any surgical field in the peritoneal cavity, septic matter or micro-organisms.

Accepting this hypothesis as proved, I link my next basal theory to it, as follows. Given an infection at the time of operation, it is infinitely better to promote its rapid elimination from the peritoneal cavity than to retard it or attempt to definitely localize or remove it by surgical drainage.

CONCLUSIONS.

1. The peritoneum has an enormous absorbing function, being capable of taking up 3 to 8 per cent. of the entire body weight in an hour.

2. Minute solid particles are caried in an incredibly short time from the peritoneal cavity through the diaphragm into the mediastinal lymph vessels and glands, and thence into the blood circulation, by which they are quickly distributed to the abdominal organs and to the bone marrow.

3. The granular bodies are at first largely transported as free bodies, swept along by the lymph currents, but later the leucocytes act as the carriers.

4. There is, normally, a force in the peritoneal cavity which carries fluids and foreign particles toward the

diaphragm, regardless of posture, although gravity may greatly favor or retard the current.

5. After the introduction of micro-organisms into the peritoneal cavity, there is great decrease in their number within the first hour, both through their intraperitoneal destruction and through their rapid absorption into the general system where they are dealt with. There is, therefore, no possibility of limiting free infectious matter to any part of the peritoneal cavity by mechanical means.

6. Vigorous streptococci which remain behind, develop, within six hours, a repellent or destructive quality for leucocytes, and the lethal combat is, therefore, inaugurated and well under way before drainage, as ordinarily employed, can possibly exercise any beneficial action. In many cases, therefore, in which surgical drainage is employed, the patient recovers in spite of and not because of it.

7. A moderate amount of even virulent organisms, carried by the blood to the lungs, liver, spleen, kidneys, gastro-intestinal tract and bone marrow, may be destroyed or eliminated without the least harm to the patient, whereas, if the same amount of infectious matter is detained about a surgical field in the abdominal cavity, or stagnates in a dependent pocket, they may generate myriads of others, and thus overwhelm the patient.

8. In many cases, therefore, drainage, as ordinarily employed, is superfluous, or even dangerous, and the rational method is to remove all possible débris and infectious matter by thorough irrigation and then leave one liter of salt solution—0.6 per cent.—in the abdominal cavity, and in order to promote and hasten natural drainage, supplement this by an enema of a liter of salt solution, given while the patient is well under anesthesia and in the Trendelenburg posture.

9. Under this plan the patient is greatly stimulated, shock is minimized or averted, the urinary excretion is greatly increased, and thus toxic matters are more easily eliminated without irritation to the kidneys or bladder, peritoneal infection is quickly eliminated while yet minimum in amount, thirst is alleviated or entirely prevented, intestinal peristalsis is promoted, and consequently tympanites is of less frequent occurrence, and the early action of the intestines evacuates infectious matter thrown out into this canal by the blood-vessels of the villi.

All of these factors combine to reduce mortality after abdominal sections, to decrease pain, discomforts and complications of the first forty-eight hours, and finally to hasten the recovery of the patient.

CASES IN WHICH PERITONEAL INFUSIONS MAY BE DANGEROUS, AND THEREFORE SHOULD NOT BE EMPLOYED.

1. Ascites accompanying the surgical lesion, which indicates that the natural peritoneal drainage is already deficient; therefore, to add an additional burden through the saline infusions, is not advisable.

2. General purulent peritonitis.

CASES IN WHICH GAUZE PACKING MAY BE INDICATED.

From a critical review of all classes of drained cases, I feel justified in greatly reducing the conditions in which gauze packing may be indicated.

Since the publication of my review[6] of 1700 cases of abdominal sections from the standpoint of intraperitoneal drainage, I have seen no reason to change my indications for gauze packing. I discard the word "drainage" purposely, for I do not believe the gauze is of any great service as a conducting medium, but simply acts as a plug to keep the external opening patulous and prevent the closure of the drained area by normal granulation tissue. Even the conditions enumerated below may be reduced to a minimum by the most painstaking technique. It is in these cases that the greatest skill is shown, and an evidence of this skill is the absence of gauze packing or other surgical drainage.

The following conditions are quoted from my former article:

1. In appendicitis when the peritoneum and tissues adjacent to the appendix are infiltrated with inflammatory products, preventing a secure closure of the stump after amputation of the appendix, and when the appendix has ruptured and either caused a localized abscess or a general peritonitis. If the operation can be performed early, when the inflammatory process is confined to the dependent portion of the appendix, *never drain.*

The objections to drainage in these cases are probably not as great as when the gauze is introduced deeply into the pelvis, because the site of the operation is more superficial and therefore the possibility of effecting true drainage is better; but if a clean operation has been performed the drain is superfluous. A distinct objection to drainage in the appendical area is the liability of post operative hernia occurring in its track.

2. Localized collections of pus in the pelvis: In these cases either the abscess sac should be enucleated cleanly, and the abdomen closed without surgical drainage, or it should not be opened through the abdomen if it is too adherent to be enucleated safely. These cases are, *par excellence*, the ones for incision and drainage through the vagina.

3. Suture of intestine: A drain should only be employed when there is doubt concerning the integrity of the suturing.

4. Excision of fistula leading from the intestine to the abdominal wall: In these cases it is safer to pack a gauze drain down to the sutured areas in the intestine, for they are especially prone to break down and re-establish the track. In case this accident occurs the gauze forms a safe avenue for the escape of fluids and gas, and the subsequent contraction of the drainage track may close the intestinal fistula.

5. Purulent peritonitis: Pawlowsky has shown that the usual avenues for the absorption of fluids from the abdominal cavity are closed in purulent peritonitis, consequently, we can only endeavor to supplement them by thorough irrigation of the abdominal cavity and free drainage. In order that the drain shall serve the best purpose it should be a large one, and, if necessary, in addition to a central opening in the abdomen, lateral openings in the flanks as advocated by Dr. Kelly, may be made. The prognosis in these cases is always grave, but this method of treatment gives the patient the best chance of recovery.

DISCUSSION.

DR. FREDERICK HOLME WIGGIN, New York City—I have been specially interested in this paper because about 1889 I came to the conclusion that the technique employed at that time in abdominal operations, namely, the cleansing and drying of the abdominal cavity after operating with sponges, was wrong, as intestinal adhesions followed by obstruction occurred frequently and patients often died a year or two after their apparent recovery from the abdominal operation, from intestinal obstruction resulting from adhesions caused by the manipulations at the time of the operation. With a view to preventing the occurrence of this difficulty, I began to wash out the abdominal cavity with hot normal saline solution instead of sponging out the cavity as formerly, and then to leave a quantity of this solution in the abdominal cavity, closing the abdominal wound without damage. I also found that this might be done even in those cases where there was pus, provided the source from which the pus was derived could be removed, even if some of the septic matter had been spilled in the peritoneal cavity in the course of the operation by using some peroxid of hydrogen to disinfect it.

6. Am. Jour. of Obst., vol. xxxv, No. 4, 1897.

I called the attention of the profession to these points in a paper read before the Alumni Association of Bellevue Hospital in November, 1893, the paper being afterward published in the *New York Medical Journal* for Jan. 20, 1894, in the following words: "The use of hydrogen dioxid in full medicinal strength for the purpose of disinfecting the general peritoneal cavity. The closing of the abdominal wound, leaving the peritoneal cavity full of hot, sterilized salt solution, the object of this being to lessen shock, to prevent adhesions, to aid in the readjustment of the intestines and omentum to their proper positions, to lessen the danger of septic peritonitis, and to aid by osmosis the action of the bowels." I have had no reason to change my original views on this matter. I am positive that the low rate of mortality in my work has been due largely to the use of the saline solution and to peroxid of hydrogen. The saline solution left in the abdominal cavity not only in my opinion tends to lessen the danger of septic peritonitis, but also makes the patient much more comfortable, increases elimination through the skin, kidneys and intestines, and also, I believe, lessens the danger of the forming of intestinal adhesions.

DR. W. H. HUMISTON, Cleveland, Ohio—I well remember in 1896 when Dr. Clark first published his monograph on this subject, and what a comfort it was to me. At this time I operated upon a bad case of tubo-ovarian abscess, and in separating the adhesions ruptured the abscess and soiled the peritoneum. The surroundings of the patient were such, and not having a graduate nurse in charge, I felt it safer, after thoroughly flushing with normal saline solution, to close the incision without drainage. At this time Dr. Clark's able paper came and you may rest assured I read and reread it with great profit and no little comfort. I watched my case closely, and I state that in quite an extended experience in abdominal surgery I never saw one recover with fewer unfavorable symptoms. From that time to the present I have not drained 2 per cent. of my cases. The principles that Dr. Clark has established have not been successfully combated. In my humble way I desire to endorse the position he has taken.

DR. HOWARD A. KELLY, Baltimore—Retrospection is pleasant when it shows progress, and I know nothing in which the progress of abdominal surgery has been more marked than in the matter of drainage. The entire status of the subject is changed. In the early eighties from 75 to 90 per cent. of all cases were drained by means of a little glass tube. This percentage was gradually reduced to 20 and 30 or even lower. In my own work I had largely given up drainage when Dr. Clark then took hold of the question, analyzed it, and put our work on a more scientific basis. Since I have been confirmed by this work I have never used drainage, except in cases of general septic peritonitis following appendicitis of persistent capillary hemorrhage from the pelvic floor and walls. I do use gauze occasionally in the abdomen, but not for the purpose of drainage. Drainage implies a continuous outward discharge of fluids used to prevent an inward accumulation. What I do now in cases of septic foci which can not be removed, or where there is burrowing, is to wall off the infected area with a loose gauze pack. I use "sequestration" and not drainage. I shut off these diseased areas, which can not be extirpated, until the intestines have thrown out a protective barrier, shutting off the rest of the peritoneal cavity. Such a drain ought to be left in 6 or 8 days. Please remember then that sequestration and drainage are different principles.

DR. J. M. BALDY, Philadelphia—It seems to me that sometimes small details will turn men away from the real truth, which is at the bottom of a general principle. What has been said in regard to the infrequency of drainage at the present time is all true, but what is given us by the reader of the paper as the cause? The leaving of salt solution in the abdominal cavity to be eliminated by the peritoneum, thus preventing or removing septic material and germs. It would seem that the change from the old method of drainage to the new method of non-drainage must have been made with some object and with some good reason. Perhaps there is something in the statement that the leaving of salt solution in the abdominal cavity has had something to do with this. Long before the gentlemen at Johns Hopkins ever gave this subject a thought, while they and I and everyone else were draining 70 to 90 per cent. sections, I watched Dr. B. F. Baer, of Philadelphia, closing cases without drainage that made my hair stand on end. I felt positive that they would die inside of twenty-four hours from sepsis and could hardly believe my eyes as I saw these cases get well. Ever since that time I have given up the drainage tube. All this was years before leaving salt solution in the abdominal cavity was heard of, and before Dr. Clark's first paper on the subject was written. I never leave fluid in the abdomen, and I will place my statistics, books and hospital records beside those of Johns Hopkins, or any other institution in the world, and if they can show me any difference I will believe it is the fluid they leave in the abdominal cavity which brings about their better results. I do not believe, however, that the fluid in that cavity has anything to do with the saving of the patient. We all know that the vast majority of these cases are non-septic. If you smear streptococci into the abdominal cavity, you can flood it with gallons of water and drain and drain, and the case will inevitably die. It is to a large extent a matter of luck, because it is impossible, on the operating table, to tell the character of the pus. If the pus and fluid be wiped away carefully, and the cavity cleared of debris and well cleansed, the peritoneum being stitched over all raw surfaces, there will be no complaint of results. The fluid that is left has nothing whatever to do with the result. The fact that Dr. Humison had one case in which he left the fluid get well is hardly worth considering—one swallow does not make spring. I have had hundreds get well without fluid. Before these illogical claims can be allowed you must reconcile my statement of results (where no solution was left) with those of the gentlemen who leave salt solution; and you must explain to yourself and me why as many of mine get well as theirs.

DR. J. HENRY CARSTENS, Detroit—Years ago I read of experiments made in Germany with indigo dye, which demonstrated that the tendency of fluid in the abdominal cavity was to go down to the cul-de-sac. Therefore, when I read the description of Dr. Clark's work, I was surprised. I thought that it was very strange, if we want to drain from the peritoneal cavity, to drain high. I did not know where I was at, and I don't know now. I agree with Dr. Baldy that there are two sides to this question. I want to criticise one thing in the paper. He says that it did not make much difference when you spilled pus into the peritoneal cavity, because you can wash it out afterwards. That is bad surgery. If you can prevent a single drop of virulent or attenuated pus from getting into the peritoneal cavity, you should do so. If I have a peritoneal cavity from which I have removed a pus tube, I have a surface which is raw and the cavity around it more or less contaminate with pus. Suppose the tube ruptured. The rectum is on one side, the bladder lies in front, and the two come together and prolapse when you put the patient into the horizontal position. Remember that you have a raw surface. Inside of a few hours these parts are all agglutinated, they are solid, and the peritoneal fluid can not wash this septic material up to the diaphragm, and you can not have it absorbed by the diaphragm, the liver, or anything else. We know that the abdominal cavity is walled in; the walling process starts in within fifteen minutes after the operation. Therefore, if I put a little tube down here in the vagina, and let this septic material run out, if there is any, I claim that I am doing the best kind of surgery. It all depends upon the kind of peritoneal fluid your patient has. It may be thin, like water, and no agglutination takes place. When I have a septic case in which union does not take place, I know that the peritoneal fluid is thin, and my septic material runs all over the peritoneal cavity and the patient dies. I would like to ask the Doctor why, in a case that has good plastic lymph, he puts in a lot of fluid and washes the septic material up near the diaphragm, and on to the stomach and liver, when it would otherwise never get there. This question must be considered carefully, and from both sides. I think the Doctor is correct in his investigations, and that there is something in it, but I hold that it is better to have your peritoneal cavity absolutely dry than to be throwing a quantity of fluid into it.

DR. WILLIAM H. WATHEN, Louisville, Ky.—My experience leads me to believe that the suggestion of Dr. Clark is not in the interest of our patient. I have not drained through the abdominal incision, nor in an abdominal operation, for three years. Neither have I put any kind of liquid into the cavity. Instead of that, I have been scrupulously careful to wipe away all the fluid I could find, whether blood or pus, and have closed the cavity without drainage. My results have been better. I have had less peritonitis, less distention of the abdomen, a lower mortality, and patients get well more rapidly. The liquid put into the abdominal cavity by Dr. Clark is all absorbed within a short time, and that is the last of its influence. Therefore, if it has any influence at all, it is only temporary, whereas the germs may develop for an indefinite length of time. I do not think the explanation he gives will justify the conclusion that a condition is produced within this short period that makes the germs less virulent, or which increases the resistance of the peritoneum to the germs. I believe the time will come when everybody will wipe away all the liquid and leave the cavity dry. Where there is fluid that is absolutely septic, and septic matter or tissue which can not be removed, we introduce gauze as a protection against drainage. We want to isolate these poisons and prevent the diffusion of the germs throughout the system. This question must be decided by individual experience.

DR. JOHN B. DEAVER, Philadelphia—I should like to raise my voice against the question of doing away entirely with abdominal drainage. I am sure that these gentlemen who close up their cases, like Drs. Kelly and Clark, do not have the cases of bad infection. I am sure, furthermore, that if you fill the abdominal cavity with salt solution, and allow it to diffuse, in cases of bad infection, you leave the last state of the patient worse than the first. I have had sufficient experience in dealing with pelvic operations to contrast and draw comparisons between the sepsis of pyosalpinx and appendicitis. You can rupture a pus tube and fill the peritoneal cavity with pus, and your patient will get well in spite of you. That may be an explanation why many of these cases get well. On the other hand, if you rupture an appendiceal abscess and spread the infection in the peritoneal cavity, every one of your patients, with few exceptions, will die. I therefore raise my voice against what I call bad teaching, even if it is done by the gynecologists. The surgeon who surveys the entire field, and does not limit himself to gynecology, has a right to raise his voice against bad teaching. I open the abdomen and survey the abdominal cavity with my finger. Then I place the patient in the Trendelenburg position, pack off with gauze, put them down and enucleate. If I am unfortunate in bad cases, and no man can enucleate pus tubes without rupturing some, I irrigate the pelvis, wipe it dry, remove the gauze, close the cavity, and my patients all get well. Where I can thoroughly dry the pelvis I do not drain in the pus tube cases, but where I can not I do drain. In the presence of considerable oozing I drain. I am not foolish enough to trust to the peritoneum that which the surgeon should accomplish. The use of the Fowler position I strongly advocate. I believe I have stood by the patient's welfare better than the gynecologist who flushes the peritoneal cavity with salt solution. As Dr. Carstens has said, it is not over fifteen minutes before it is all absorbed, and consequently it has nothing to do with the getting well of the patient. I have seen some of the most fearful forms of suppuration in the abdominal cavity, and therefore will always advocate practice versus theory.

DR. SETH C. GORDON, Portland, Maine—I agree fully with the speaker that a surface abscess should be drained. An appendiceal abscess is a surface abscess, and it has nothing to do with the pelvis. Every such case I would drain. For a good many years I have not drained. When I took this stand at the Detroit meeting, a very good friend of mine said he should like to know where this gentleman comes from that he never drains. I told him, adding that I would be glad to show him how to do abdominal surgery without drainage. If you have septic material there, you can not take it out with a glass drainage tube, because these streptococci will not hustle to get to the outside through that little glass tube. In fact, the moment you put in the drainage tube you prevent these germs from getting out. Therefore, if you are not positive that you have your case aseptic, your drainage tube will not help it. If it is aseptic, you do not need the tube.

I do not endorse Dr. Clark's idea of filling up the pelvic cavity with fluid. I do not think it counts in producing good results. I do believe, however, that saline infusion allays the thirst and influences prompt action of the kidneys.

DR. J. WESLEY BOVÉE, Washington, D. C.—I think this discussion would be a great deal more interesting to us if these gentlemen taking sides will give us their experience with salt solution in the abdominal cavity. My belief is that many of them, especially those who are strong in their opposition, have never used it. Dr. Clark did not say to fill the abdominal cavity with fluid. He simply advocates washing out and leaving a small amount behind.

DR. W. O. HENRY, Omaha, Neb.—Until about three years ago my experience in the matter of drainage was like that of most of you. I believe it wise to drain in some cases where we are in doubt. I think it would be a serious mistake for us to say never drain in abdominal or pelvic cases. In regard to the use of saline solution, I have used it for several years in some of these cases, leaving it in as recommended by some one several years ago. I flushed the abdominal cavity, got out all the pus I could, and left in a quart, or even a larger amount in some cases, but my results were not satisfactory. I then left off both flushing and draining. I wall off my pelvic cavity or appendix, wipe out the pus, flush the cavity, dry it carefully, and close it up, and I have gotten the best results. While I believe that Dr. Clark's paper is a valuable one, I can not agree with his conclusions, and I would not use either drainage or general flushing in a very large majority of these cases.

DR. GUSTAV KOLISHER, Chicago—The practical value of Dr. Clark's conclusions can be easily judged by the statements of Drs. Kelly and Baldy. Dr. Kelly himself said that he did not use the so-called drainage simply because we are really unable to drain. Everyone who knows what becomes of the intestinal surface in the proximity of a so-called gauze-drainage knows that this packing does not drain, but enhances and perfects the formation of adhesions around the infected area. Dr. Baldy quite rightly challenges Dr. Clark to prove that his results are better than Baldy's and of those operators who follow his conviction.

The procedure of leaving salt solution in the peritoneal cavity was put to an actual test about nine years ago in Schauta's clinic. If in removal of a pyosalpinx the tube burst, we examined at once, and we drained, as the usual term is, in all cases where streptococci were to be found, and closed up without packing when we did not find them. Our results, however, did not improve much in spite of this drainage. So it was given up, and Herzfeld suggested, because difficult pyosalpinx operations take a long time, not in order to disinfect the peritoneum, but to give the patient a chance to absorb fluid as rapidly as possible, to put about one quart of salt solution in the abdomen in such cases. The results, however, were just the same. The patients who became infected with virulent streptococci died salted or non-salted.

Dr. Clark is unable to give us any proof of his statement that all the peritoneal lymph currents sweep toward the diaphragm. For that reason his conclusion is without foundation. It is necessary to distinguish between the superficial currents on the peritoneal surface and the current which circulates in the subperitoneal tissues. If Clark's statement would be true there would not be any circumscribed or isolated infection in the peritoneal cavity. And we see cases of circumscribed infection operated in Trendelenburg position, where the force of gravity trends toward the diaphragm, and the infection remains circumscribed. According to Clark's statements, we leave fluid in the peritoneal cavity in order to enable the peritoneum to dispose of the bacteria as quickly as possible. One method for isolating germs is to dilute their medium. If Clark's theory is correct, what would we do but transplant the germs all over the peritoneum and give them a much better chance to produce an extensive infection. On the other hand we know that if we inundate the peritoneal cavity with fluid

the absorptive power of the peritoneum is greatly reduced. Thus, premises and conclusions of Dr. Clark's theory are wrong. The only thing that we can gain from a rapid absorption of the saline fluid is an improvement of the action of the patient's heart, and a quicker elimination of toxins through the eliminatory organs. If Clark could prove that out of a certain number of cases, where virulent peritoneal infection was proven by microscope, culture and inoculation, he saves a greater percentage than other operators, then we could positively determine that his method saved patients who otherwise would have died.

As long as he can not prove that, I do not believe in his theory, his method, nor this saline monument.

DR. T. J. WATKINS, Chicago—Dr. Clark's paper is based almost entirely upon two statements: One, the direction of the lymph current, and the other, that it is impossible to localize septic matter in the peritoneal cavity. The latter statement I do not believe to be true, because we have all seen cases of localized pelvic suppuration without any general manifestations of sepsis. Therefore, I firmly believe that if Nature can localize septic matter in the pelvic cavity, we can, by the aid of Nature, use gauze for the purpose of quarantining septic and necrotic tissue in the peritoneal cavity. As to the lymph current, I fail to see the practical application, for I do not believe that the lymph current is strong enough to overcome the effect of gravity, which causes fluids to flow into Douglas' cul-de-sac. In the study of abdominal drainage the lymph current, if not of much importance, as drainage, can have but little effect upon the lymphatics. Most that can be accomplished is: 1, To quarantine septic and necrotic tissue; and 2, to guard against the accumulation of bloody serum, which is an excellent culture medium for most bacteria.

DR. PALMER DUDLEY, Chicago—I have had sufficient experience with both saline solution and with drainage to warrant holding an opinion. It is a well-known fact that the peritoneal sac is a balancer of the circulation. If you infuse two quarts of saline solution into the right vein of the circulation and open the abdomen afterward, you will find the excess in the peritoneal cavity as a free solution. If it is a septic case, I invariably have the patient transfused as soon as the ether is started. The current is then towards the pelvic cavity, and I never fail to drain a septic case through the vagina. In such cases the current is established from the over-pressure of blood; the drainage is through the abdominal cavity, and out through the vagina. When Dr. Kelly or any other man says that you can not drain with iodoform gauze, I say he is talking from inexperience or up toward the ceiling, because it can be put in and drained. Look at your charts twenty-four hours afterwards, and ask the nurse what the patient's condition is, and she will invariably tell you that he is draining well.

DR. ANDREW SMITH, Portland, Ore.—In the extreme West we owe a great deal to the writer of this paper. I and my colleagues were in the habit of draining frequently. When Dr. Clark's first paper was published, quite a reaction set in, and since then it has been a progressive matter with us not to drain. I have come to the conclusion that there is no such thing as effectual drainage of the peritoneal cavity. Peritoneal absorption is so rapid that sepsis is taken up before it can be drained away, and the drainage material is soon walled off, thus precluding further drainage of the general cavity. We must, therefore, trust to our toilet to remove as much sepsis as possible, and trust to Nature to handle that which is already absorbed. Drainage is, therefore, not only useless, but harmful. But this applies only to the general cavity. When there is a walled-off cavity which is septic it should be drained; or rather, it should be packed with iodoform gauze, which serves the double purpose of absorbing the septic contents of the circumscribed cavity, and of stimulating the walling-off process.

DR. EMIL RIES, Chicago—I wish to point out that Dr. Clark's paper of to-day suffers from two basic and fundamental mistakes. He says that if in the course of an abdominal operation we have infection of the peritoneum, we have pus in the cavity, and he thinks that is the beginning of the infection. The infection spreads because the germs in the pus spread all over the peritoneum. That is one fundamental mistake. The peritoneum is a living membrane, and if any pus is spilled on it and infection occurs, it will not stay on top, as it would on a piece of sheet-iron, but it goes right into that membrane, and if you examine an infected peritoneum with the microscope, you do not only find signs of inflammation or germs on top, but in the substance of the membrane. Therefore, when he washes out the cavity, he only reaches what is on top and not what is in the peritoneum. That is the greatest mistake, a mistake against which we all should protest. It is the greatest mistake that can be taught.

The second mistake I can point out in a few words. According to his idea, the importance of the distribution of the germs in the abdominal cavity lies in the fact that a large number of cells take hold of these microbes and carry them off. That is the old Metschnikoff theory, which has been exploded and is long dead. Therefore, Dr. Clark's theory is also exploded. He can take all the germs in the peritoneal cavity and carry them off, but that does not do away with the infection and does not prevent the death of the patient. It has long been known that the body of the micro-organism is not the cause of the disease, and is not the cause of the death of the patient, but the products of this individual micro-organism, the toxins, which are present and spread throughout the body are the disturbers. The important thing is to prevent infection, to prevent these germs from getting into the peritoneal cavity. All the surgeons who have spoken here have shown us the different ways in which this can be done. I do not know that it is necessary to pour saline solution into the peritoneum. I have seen patients die and I have also seen patients recover after its use. It is, after all, a question of the virulence of the micro-organisms. It is not whether he has staphylococci or streptococci, because we have staphylococci that are very insignificant and harmless, and we have staphylococci that are very dangerous. The Metschnikoff theory applied to this treatment of the peritoneum is exploded, and so are the two fundamental principles of Dr. Clark's theory of treatment of peritonitis.

DR. CLARK, closing—On account of the fact that my paper has run counter to the opinion of many previous writers, I was quite prepared for the very vigorous discussion which it has drawn forth. I shall not attempt to reply to all of the criticisms that have been offered to the paper, although I have endeavored in my completed paper to cover all of these points. As I have stated, when I first proposed the postural method of drainage in 1896, I did so with some trepidation, notwithstanding the fact that I had used it in a large number of cases with uniform success. As the teaching of the past had been so radically opposed to the theories which I advocated, I naturally feared that possibly the future might bring forth cases which would prove that the method was open to serious objection. Five years have passed since the publication of my first article, and I have paid especial attention to the practical side of this question, and, therefore, the intimation on the part of some of the speakers that my conclusions are based upon theoretical, rather than upon practical grounds, is without foundation.

As to Dr. Ries' criticism that the phagocytic theory has long since been exploded, I may say I have distinctly stated in the body of my paper that I do not know whether the so-called "alexin" or the phagocytic theory is the proper one. But from the very careful discussion of the action of the leucocytes by Bordet and Walgren and others, I can by no means agree that the phagocytic theory is exploded. At the same time, however, I give the very greatest credence to the alexin theory. After all, it matters little in the practical consideration of this question, whether the leucocytes are directly acting as phagocytes, or whether they merely secrete the germicidal agent (alexins). From the trend of the discussion on the part of some of the gentlemen, I see distinctly that they have not understood the purport of my paper. As a preliminary and absolute requisite for the employment of the natural peritoneal method of drainage, the operation must have been conducted with absolute care, and the most painstaking attention to every detail of the operation. To leave a suppurating area which would subsequently continue to be a focus of infection would be

a contra-indication to the use of the natural method of drainage. A simple spilling of pus during the course of the operation is not a dangerous complication, provided the general abdomen has been well walled off with gauze or sponges, and that the pus is immediately sponged out. Several speakers who have said that they have gradually stopped the use of drainage have shown that their results are better now than ever before. If they go one or two steps further along the line of progress, I thing they will probably find that their results will be even much better yet.

The point emphasized by one or two speakers as to the action of virulent streptococci is well taken. I do not, for one moment, feel that salt solution will wash out all the germs from the peritoneal cavity, but I do believe that we eliminate more debris and foreign matter in this way than in any other, and subsequently, the leaving behind of salt solution greatly facilitates the rapid absorption of matter which is not removed by irrigation. If a virulent streptococci infection is present, I do not believe that a barrel of salt solution will save the patient, and, at the same time, I do not believe that yards of gauze drainage will effect any better results. These are the sporadic cases which terminate with the symptoms of the most virulent poisoning. Some of the gentlemen present who have misinterpreted my remarks, seem to think I have advocated the complete abandonment of drainage. If they will read my "Indications for Drainage" they will find that this is by no means the case. In my paper I have endeavored to put upon a scientific basis the routine employment of peritoneal infusions of salt solution. Outside of the postural method of drainage which I advocated in my first paper in 1896, I claim no originality in the use of salt solution as other operators had employed it before I took up the subject.

My object has been to endeavor to explain on a scientific basis the undoubted benefits derived from the liberal employment of peritoneal infusions.

PRIMARY CARCINOMA OF THE NASOPHARYNX. A TABLE OF CASES.*

CHEVALIER JACKSON, M.D.
PITTSBURG.

Primary carcinoma of the nasal fossæ is rare, yet most rhinologists of considerable experience have seen cases. Primary carcinoma of the nasopharynx is so rare, judging from the fewness of reports, that but few rhinologists have had even one case. A careful search of the various indexes of the medical journals published in French, German, English, and Italian during the last twenty years has failed to unearth more than 14 cases. It is probable, however, that some reports have not been found; others have doubtless escaped because buried under misleading titles. Cases primary in the nasopharynx, later invading the oropharynx, velum, tonsil, nasal fossæ, antrum and brain, probably have been reported, if at all, as of these regions. Politzer[17] mentions 5 cases where the Eustachian tube was involved by cancerous extension from the tongue and the superior maxilla, but none of these seem to have been primary in the nasopharynx. It scarcely seems possible that all medical records should contain so few as 14 cases of carcinoma of the nasopharynx, yet Moritz Schmidt,[5] in a total of 32,997 nose and throat patients, did not meet with one case, though 75 of laryngeal carcinoma were seen. Reports of 5 cases were collected by Bosworth,[6] in 1889, to which he added 1 of his own observation. To these I have added 8, including one of my own, making 14 in all, tabulating them as well as the incomplete reports would permit. The table is incomplete, because 5 of the cases were evidently not under observation to their termination, and consequently only record symptoms to a certain stage. All of the cases were primary in the nasopharynx, with the possible exception of Lotzbeck's,[3] in which the nasopharyngeal portion was discovered at the autopsy. So small a number of cases is not a very safe basis for deductions; yet we must draw conclusions by the light we have. Before proceeding to the consideration of the table, I beg leave to give the history of the case that came under my observation.

On March 5, Miss J. P., aged 23, a cork-worker, was referred to me by Dr. Leon Sadowski. She was white, American born, of German parentage, her family history negative as to cancer, syphilis and tuberculosis, and no personal specific history. She complained of constant lancinating pain in her right cheek, above her right eye, deep in the right ear, and in and under the right lower jaw, so severe at night that she had been unable to sleep for three months. Dr. Sadowski stated that during the few days she was under his care one-half grain doses of morphin had no effect. Prior to three months, the pain had been intermittent for a year. Right nasal stenosis was first noticed three weeks previous to her consulting me, but had probably existed longer. The discharge anteriorly and posteriorly was odorless, thick and yellow, with no admixture of blood, and there was no history of hemorrhage. There was infiltration and tenderness of the cervical, parotid and submaxillary lymphatic glands. Ankylosis of the jaw prevented separation of the incisors more than one-half inch. The face was asymmetrical, the right cheek somewhat swollen, the general appearance of the patient somewhat cachectic, and the temperature subnormal, 97.6. Dr. Theodore Diller, after a careful examination, reported the functions of the fifth and seventh nerves unimpaired, and the brain uninvolved. Dr. C. A. Wishart kindly examined the eye-ground and reported a low-grade optic neuritis in both eyes: Visual acuity, O. D. 15/30; O. S. 15/70.

Upon inspection of the fauces I found a slight redness and infiltration of the right pillars and a bulging downward of the velum on the right side. The rhinoscopic mirror brought into view a large cauliflower-like mass completely hiding the right choana and fossa of Rosenmüller, and burying from view all of the Eustachian prominence except the border of the orifice, which was in line with the vomer, owing to the swollen and infiltrated condition of the eminence. This lateral mass was in contact with large masses of adenoid tissue which hung downward from the vault, and which in appearance differed from adenoid hypertrophy only in a red-bordered ulceration at the free extremities of some of the masses. The jaws could not be separated sufficiently wide to permit the finger to reach the vault, but on palpitation through the velum a soft pultaceous mass could be felt above a harder mass, which latter was evidently the infiltrated Eustachian prominence. On anterior rhinoscopy after depletion with adrenalin and cocain, a grayish-pink mass could be seen back in the nasopharynx, but it was apparently not attached to the turbinals, and was certainly not in the nasal cavities. Several fragments of the growth were removed anteriorly with alligator forceps. Pending a report the patient was put on a specific treatment, with large doses of morphin and antipyrin to control the pain. Microscopic examination of the fragments, by Dr. Edward Mayer, showed nothing to indicate malignancy. For the purpose of getting a more satisfactory specimen, and of making a digital examination, the patient was chloroformed, a gag inserted and the rigidly ankylosed jaws forced open. The finger determined the growth to spring from the right wall of the nasopharynx, both anterior and posterior to the Eustachian eminence; though the point of greatest degeneration, and therefore probably of origin, was at the junction of the vault with the right wall of the nasopharynx, between the Eustachian orifice and the choanal margin. The pterygoid plates could be plainly felt as the soft degenerated tissue gave way under the finger. The right Eustachian eminence was three times the size of its

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. Emil Mayer, W. E. Casselberry and J. N. Mackenzie.

fellow, and quite hard, except on its anterior aspect, where it was ulcerating. The posterior ends of the middle and inferior turbinals were infiltrated, but not breaking down, evidently having been but recently involved. With the aid of Dr. Milligan I removed all of the growth that would come away readily, along with the involved right Eustachian eminence, by means of the cold snare, Gottstein curette, side curette and Juraz adenoid forceps. The masses aggregated the size of a hen's egg. Anterior and posterior plugs were necessary for hemorrhage. Dr. Edward Mayer examined sections of the growth microscopically and reported it to be a columnar epithelioma.[14] Dr. Linnæus H. Prince, of Philadelphia, pronounced it glandular-celled carcinoma. There is now, three months after the operation, a deeply excavated ulcer at the junction of the vault with the outer wall. The region of the removed Eustachian eminence is slightly swollen and infiltrated, but there seems at present no tendency to repullulate. The nasopharynx is free and roomy, the choanal margins are visible all around and free from encroachment. The powder insufflated posteriorly comes like smoke out of both anterior nares. The natural hollow externally at the angle of the jaw on the right side is filled out more than level by the infiltrated parotid glands, and this region is the seat of pain, which is often darting in character, shooting across the face to the temple and upper jaw. This and the "pain deep in at the root of the ear" are, or would be, severe at night, but are perfectly controlled by 1 grain of morphin sulphate at bedtime. There is occasionally a slight fluttering twitch on the right side of the face, such as we see when the facial nerve is touched in the tympanum. As the membrana tympani is normal and there are no signs of middle ear trouble, I have thought this due to pressure or irritation of the facial nerve, either immediately before or after its emergence from the temporal bone, probably by the infiltrated parotid lymphatic glands. There is now no fixation of the jaw, mastication is easy and painless, but the maximum separation of the incisors is one inch. Beyond this, severe pain is produced aparently by pressure on the parotid lymphatic enlargement. Swallowing is painless and unimpeded, all the palatine muscles moving normally. The temperature has not been above normal since the post-operative rise of 1.5 degrees; it is, however, often subnormal, occasionally down to 97 degrees. There is no hemorrhage, no blood in the discharge, which is muco-purulent, small in quantity, never acrid and there is absolutely no fetor.

No.	Age. Sex.	Reporter.	Family History.	Nativity.	First Symptom.	Ear.	Eye.	Fixation Max.	Pain.	Discharge.	Odynphagia.
1	75M..	Durand-Fardel	. . . . .	. . . . .	Dysphagia, Dyspnea.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
2	50M..	Maissonneuve.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
3	37F...	Lotzbeck . . .	. . . . .	. . . . .	. . . . .	. . . . .	R. and l. amaurosis ex-ophthalmos.	. . . . .	. . . . .	Fatal hem. from inf. max., carcinoma, not naso-phar.	. . . . .
4	39F...	Flour.	. . . . .	. . . . .	Adenopathy .	R. deafness.. .	Contract pupil, press. on sympathetic.	. . . . .	Slight.. . . .	Epistaxis. . . .	. . . . .
5	65M..	Schmidt . . .	. . . . .	. . . . .	Coryza; bloody discharge.	. . . . .	. . . . .	. . . . .	. . . . .	Bloody muco-pur. Epistaxis.	. . . . .
6	59F...	Bosworth. . .	. . . . .	. . . . .	Discharge; r. nasal stenosis.	. . . . .	. . . . .	. . . . .	Slight throughout.	Bloody, fetid muco-pur.	. . . . .
7	45M..	St. Mary's Hospital.	Acquired syphilis	. . . . .	L. nasal stenosis.	. . . . .	L. corneal anesthesia, l. int. strabis.	Present..	Headache, left side.	Bloody muco-pur.; r. epistaxis.	Late. . . .
8	40M..	S. A. Fox . . .	Negative. . . .	. . . . .	Otalgia, deafness, autophony.	Otalgia, deafness, autophony.	Invaded, diplopia, strabismus.	. . . . .	Sharp in ears. Headache.	Fetid muco-pur.	. . . . .
9	63F..	McBride. . . .	. . . . .	. . . . .	Otalgia, "pain throat."	Otalgia. . . .	. . . . .	. . . . .	Ears and throat.	Bloody expectoration.	. . . . .
10	14M..	J. M. Elder...	Mother, cancer, liver and stomach.	Canada; Irish parentage.	Adenopathy..	. . . . .	. . . . .	Present .	Severe at base of brain.	Not fetid, muco-pur.	. . . . .
11	40M..	E. J. Brown..	Mother, abdominal tumor.	. . . . .	Chr. catarrh, r. otalgia; tinnitus, deafness.	Otalgia, tinnitus, deafness.	. . . . .	. . . . .	Otalgia, headache.	. . . . .	. . . . .
12	56F...	Robertson. . .	Abdom. tumor, obstruction of bowel.	. . . . .	L. otalgia; l. anosmia; l. nasal sten.	Otalgia, 2 attacks, l. o. m. a., recovery.	Pain.	. . . . .	Ears, eye. . . .	Muco-pur. . . .	Present..
13	42M..	Roncalli . . .	Negative...	Italy. . . .	Bloody discharge; otalgia.	Otalgia (darting).	. . . . .	Present..	Darting l. ear, l. side face.	Bloody muco-pur.; epistaxis, hemor. fauces.	. . . . .
14	23F...	Ch. Jackson..	Negative. . . .	U. S.; German parentage.	Neuralgia 5th n.; reflex.	Otalgia, cartilag. tube involved.	Optic neuritis. Pain.	At 6 mos.	Neuralgia, 5th nerve; otalgia. Later lancinating in growth.	Not bloody; not fetid; muco-pur.	None yet..

ETIOLOGY.

Sex.—This does not seem to be a factor, as the cases are nearly equally divided, 57 per cent. being males, 43 per cent. females. This is in marked contrast to cancer of the larynx, where about 75 per cent. are males, and in greater contrast to cancer of the oropharynx, where about 90 per cent. are males, and in still greater contrast to cancer of the lip, where practically all cases are males. Moritz Schmidt, in a total of 32,997 nose and throat patients, found carcinoma in the nasal passages in 5 (3 males, 2 females), 60 per cent. males; in the nasopharynx in none; in the oropharynx in 16 (15 males, 1 female), 94 per cent. males; in the larynx in 75 (61 males, 14 females), 81 per cent. males.

Irritation.—This brings up the interesting question of the part played by irritation in the location if not causation of carcinoma. Most authorities now agree that, in general, irritation may favor the development of carcinoma, just as trauma does sarcoma; but the question that interests us is the bearing on the subject of the relative frequency of the disease in the nasal passages and larynx as compared with the relative rarity in the nasopharynx. My own opinion, based on fifteen years of observation of the upper air-passages of persons who inhale Pittsburg's smoky and dust-laden atmosphere, is that the nasopharynx is the most irritated portion of the respiratory tract. My case-books show an average of 48 cases of chronic catarrh of the nasopharynx to one of the larynx. We all know of the warming, cleansing and moistening duty performed in large

part by the abrupt turn of the nasopharynx. In doing this duty the mucous membrane is very much irritated. All this is so much the less irritation for the larynx. This organ has its duty of vocalization, but ordinary use of the voice does not irritate. In making the comparison the use of tobacco does not enter, as, in ordinary smoking and the "inhaling" of cigarette smoke the larynx does not seem to be subjected more than the nasopharynx to either direct contact with the smoke or continuity with tissue exposed to the direct contact. As shown by the relative frequency of carcinoma of the larynx and of the nasopharynx, then, it would seem that irritation was not a factor in the production of carcinoma.

Occupation.—This is only mentioned in a few instances, but in only one is it of a particularly irritating kind. Case 14 was a cork-worker, exposed to the very irritating dust of the cork works, but this isolated instance is no basis for argument.

Location.—In 66 per cent. of the cases, where the location is given, the growth sprung from the vault. This is the most irritated portion. At the upper part it is the seat of the pharyngeal tonsil, and if it were not for the rarity of the disease we might be justified in thinking the retrograde changes in this structure were a factor. In one case the growth appeared some years after removal of what appeared to be adenoids, giving rise to the queries: Did the benign growth develop malignancy? If so, was the irritation of removal a factor? Reasoning from analogy, we may conclude benign growths may become malignant, but operative removal is not a factor, as shown by Semon in disproving Lennox Browne's view that repeated endolaryngeal operations cause benign growths to develop malignancy. Delie[19] reports "sarcomatous recurrence" after adenectomy. Age does not eliminate adenoids as a predecessor of malignancy, as we have all seen adenoids at 30 and over. In the writer's case there were large adenoid masses not yet invaded by cancerous tissue, as demonstrated by the microscope, but whether they existed prior to the cancer, or whether the pharyngeal tonsil proliferated by reason of the peri-carcino-

Dysphagia.	Dyspnea.	Miscellaneous.	Origin.	Extension.	Lymph glands involved.	Secondary dep.	Operation.	Termination.	Clinical diag.	Microscopic Report.	Duration.
Obstructive.	Obstructive	. . . . .	Posteri'r surface velum.	Oropharynx.	R. and l. cervical and parotid.	Lymphatic glands	None	Death by exhaustion, inanition.	Scirrhus.	. . . . .	. . . . .
. . . . .	. . . . .	. . . . .	Vault. . .	. . . . .	. . . . .	. . . . .	Exsection maxilla	. . . . .	Carcinoma	. . . . .	3 yrs. to date reported.
. . . . .	. . . . .	. . . . .	Vault. . .	Cranial and nasal cav.; r. orbit antrum; slight l. orbit.	. . . . .	Inf. maxilla, secondary in naso-ph.(?); primarily in thyroid.	. . . . .	Death by hemorrhage inf. max. carc.	Carcinoma	. . . . .	"Some time."
. . . . .	. . . . .	Paral. r. voc'l cord; pressure of vagus by glands.	Vault. . .	. . . . .	R. cervical sup. and deep r. submax.	Lymphatic glands	None	. . . . .	Carcinoma	. . . . .	6 years.
Obstructive.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Gussenbauer resect.; both s. max; surv. few weeks.	Death. . . .	. . . . .	Small-celled Medullary.	1 year.
. . . . .	. . . . .	. . . . .	Vault. . .	Cranial cav., "brain symptoms."	R. cervical, ulcerated and healed.	Lymphatic glands	Cold snare; palliative; surv. 1 year.	Death by exhaustion.	. . . .	Medullary .	3 years.
Paralytic (?)	. . . . .	Par. of face; motor and sens. Vertigo	Left wall	Cranium, l. turb., l. antrum.	L. cervical submax.(?)	Lymphatic glands	. . . . .	Death.. . . .	. . . . .	Epithelioma	2 years.
. . . . .	. . . . .	. . . . .	. . . .	Cranium, l. orbit.	None	. . . . .	Annandale; survived two months.	Death. . . .	. . . . .	Epithelioma	2 years.
. . . . .	. . . . .	. . . . .	Right wall	Velum, right tonsil.	R. cervical..	Lymphatic glands	None	. . . . .	Epithelioma.	. . . . .	1 yr. to date of exam.
. . . . .	. . . . .	Albuminuria tube casts.	Vault. . .	. . . . .	R cervical; l. slightly.	Lymphatic glands	Lymph. glands extirpated; surv. 2 mos.	Death. . . .	. . . . .	Scirrhus. . .	2 years.
. . . . .	. . . . .	. . . . .	Vault. . .	. . . . .	R. cervical; l. cervical.	Lymphatic glands	Cold snare; extirpated lymph.	Death. . .	. . . . .	Epithelioma	5 years.
. . . . .	Early, prior to obstruc.	. . . . .	Vault. . .	. . . . .	L. cervical .	Lymphatic glands	None	. . . . .	. . . . .	Epithelioma	1 yr. to date of exam.
. . . . .	. . . . .	Temperat're elevated.	Vault. . .	. . . . .	. . . . .	. . . . .	Galvanic igni puncture.	Death, marasmus, hemorrhages.	Telangiectasic carcino.	. . . . .	1 year.
None yet..	None yet.	Adenoids invaded, temperature sub-normal.	Right wall	None at this date.	R. cervical; r. parotid.	Lymphatic glands	Cold snare; curette forceps.	. . . . .	. . . . .	Epithelioma (glandular-celled carcinoma).	1½ yrs. to date of report.

RESUME.

Number of cases, 14; 8 males, 6 females. Range, 14 to 75 yrs: mean, 46; 86 per cent. between 30 and 40; 57 per cent. males, 43 per cent. females.

Fam. History.—Negative, 3; cancer, 1; "abdominal tumor," 2; acquired syphilis, 1.

First Symptom.—Otalgia, 5; adenopathy, 2; nasal stenosis, 3; bloody discharge, 2; dysphagia, 1; neuralgia, 5th nerve, 1.

Ear.—Otalgia, 6; deafness, 3; tinnitus, 1. Otit. med. cat. acuta followed by recovery, 2 attacks in 1 case.

Eye.—Strabismus, 2; pain, 2; amaurosis, 1; exophthalmos, 1; corneal anesthesia, 1; diplopia, 1; optic neuritis, 1.

Fixation Max.—Present, in 4; not mentioned, in 10.

Pain.—Ears, 6; slight, 2; headache, 2; throat, 1 (?); neuralgia, 5th nerve, 1; lancinating in growth, 1 (?).

Discharge.—Muco-pur., 8; bloody, 5; fetid, 2; not fetid, 2; fetor not mentioned, in 10; acrid, no mention; epistaxis, 4; bloody expect., 2; none, 2; not mentioned, 6.

Odynphagia.—In 2; none, 1; not given, 10.

Dysphagia.—In 3; obstructive, 2; probably paralytic, 1; none, 1; not given, 9.

Dyspnea.—Obstructive, in 1; prior to obstruction, 1; none mentioned, 12.

Miscellaneous.—Face paralysis, motor and sensory, 1; vertigo and albuminuria tube casts, 1.

Origin.—Vault, 8; R. wall, 2; L. wall, 1; velum, 1; not given, 2.

Extension.—Cranial cavity, 4; orbit, 2; oropharynx, 2; none, in 1; not given, 7.

Lymph Glands Involved.—Cervical, in 9; (R. 4, L. 2, both, 3); parotid, 2; submaxillary, 2; none, 1; not given, 4.

Secondary Dep.—In lymphatics, in 9; none elsewhere. No carcinomatosis. One case nasopharynx, inf. max. and thyroid all involved.

Operation.—Radical preliminary, 3; palliative, 4; none, in 4; not given, 2.

Termination.—Death in 8; not given, 6; by exhaustion, in 2; by inanition, 1; by hemorrhage inf. maxilla, 1; immediate cause not given, 4.

Micro. Report.—Epithelioma, 6; scirrhus, 2; medullary, 2; telangiectasic, 1; variety not given, 3.

Duration.—Range, 1 to 6 yrs.; mean, 2 yrs. 9 mos.

matous hyperemia, the writer does not know. His opinion is that the adenoids were there since childhood, though they were not large enough to produce stenosis. In Case 13 Roncalli says "there is the presumption, sufficiently founded, that the adenoids had spontaneously changed into a malignant neoplasm."

Age.—This is a recognized etiologic factor in carcinoma. The age of the cases in our table may be analyzed as follows: 10 to 20, 1 or 7 per cent.; 20 to 30, 1 or 7 per cent.; 30 to 40, 2 or 14 per cent.; 40 to 50, 4 or 29 per cent.; 50 to 60, 3 or 21 per cent.; 60 to 70, 1 or 7 per cent.; under 30, 2 or 14 per cent.; 40 to 60, 7 or 50 per cent.; 30 to 80, 12 or 86 per cent. The text-books state that carcinoma of the nasopharynx is rare before 30, yet 14 per cent. of the reported cases occurred in the first three decades. The score between 40 and 60 includes half the cases.

Heredity.—All authorities agree as to heredity being a factor in carcinoma. Of the cases in our table the family history is only given in 6. In 3—50 per cent.—of these there was a history of cancer or "tumor"; in

3 cases—50 per cent.—it was negative. The right side seems to have been involved twice as often as the left, judging by the lymphatic infiltration, but we are apt to err in deductions from so few cases. Beyond the three etiologic factors, heredity, age and irritation, all is theory.

SYMPTOMATOLOGY.

Of course there are the symptoms common to all nasopharyngeal growths; coryza, obstruction to nasal breathing, postnasal discharge, pain, and, late in the disease, dyspnea, dysphagia, odynphagia, otalgia and deafness. To these must be added, in malignant disease, cachexia and intracranial extension. Of the symptoms that are usually enumerated as pointing particularly to carcinoma in the nasopharynx may be mentioned pain, fetor, hemorrhage, bloody discharge, and glandular involvement.

Pain.—This characteristically lancinating at, or near, the seat of the growth, is reported in only 2 cases, though it may have been present in others, being referred to the ear or throat. Six of the 14 cases—43 per cent.—report otalgia. The laity can not describe the location of a sensation in the nasopharynx, and a sensation arising on one side of the cavity is generally referred to as in the "root of the ear" of the corresponding side. Therefore we may conclude that of the 10 where pain is mentioned, 6 had more or less characteristic cancer pain. It was not characteristic in 3, and in 2 of these it was very slight. In Case 10 relief was sought for enlarged glands, the pain being slight early, but later—Dr. Elder informs me in a personal letter—it became very severe and was referred to the base of the brain, though without symptoms of meningitis or mental disturbance. Pain evidently may be: 1, reflex neuralgia due to irritation of nerve filaments, as in the early stages of Case 14; 2, aching from pressure of the growth on a nerve trunk, as in the later stages; 3, true lancinating pain in and reflected from the seat of growth, as characteristic of cancer elsewhere; or 4, very slight from the onset to euthanasia, as in Case 6.

Pain on swallowing would likely only be complained of early when the growth involves the velum, or, when late, its bulk causes the growth to be pressed by the velum in swallowing.

Fetor.—This is one of the most constant symptoms of carcinoma elsewhere on mucous surfaces, especially in

the stage of ulceration, but it is not mentioned in the reports of 71 per cent. of the cases. It may have been omitted, but it is so obtrusive a symptom that the observer is not likely to omit it. In Case 10 there was no fetor from the beginning to the death. This case was scirrhus, which usually is later in ulcerating than epithelioma. In Case 14 there never was any fetor though the growth had existed a year and a half, with ulceration for at least six months.

Hemorrhage.—This and bloody discharge, while set down in the text-books as usual symptoms, do not, from the cases reported, seem to be the constant accompaniment that is found elsewhere, in uterine cancer for instance. In the writer's case, after one and a half years' progress, there has been no bleeding or bloody discharge, except for a day or two after the growth was extirpated. In Case 10, Dr. Elder informs me there never was any expistaxis or other hemorrhage. In Case 13 hemorrhage was an early symptom, blood flowing from both nose and mouth, and an effort to get a specimen for microscopy resulted in such free bleeding that, the case being an out-patient, the attempt was given up.

Lymphatic Involvement.—The absence of lymphatic involvement would have been so remarkable that it would surely have been reported, so that we are justified in assuming it present when not mentioned, especially as in 3 of the 4 instances the diagnosis was not microscopic. No one would make a clinical diagnosis of carcinoma in the absence of lymphatic enlargement. Therefore we may count it present in all cases—93 per cent.—except one and possibly here the deep glands may have been infiltrated but not palpable, a possibility demonstrated by Lack[16] in carcinoma of the tonsil, where they were discovered in an external radical operation. Glandular enlargement in the neck was the first symptom noticed by the patient in two instances, and seems to have been a very early symptom in the others, though set down in some text-books as late. It progressed slowly in all cases; and sloughed out and healed up spontaneously in one.

Intracranial extension.—This is mentioned in some of the text-books as a less frequent occurrence in sarcoma than in carcinoma. We find, in our table, cerebral extension in 50 per cent. of the cases that were observed to their termination. This is exactly the same percentage as in 14 of sarcoma under observation to the end. It would be misleading to base the calculation on cases the later history of which is not reported, because cerebral involvement is a late symptom. There seems remarkably little tendency to extend downward, only 2—14 per cent.—having reached the oropharynx. This, with the rarity of involvement of the velum, accounts for the rarity of dysphagia and odynphagia as symptoms. Dysphagia was present in one case before the bulk of the growth would interfere with deglutition. This may have been paralytic, or due to enlargement of the deep cervical glands lying close to the esophagus.

Cachexia doubtless was present in all the cases, but the date of its onset was not definitely stated so tabulation is useless. General carcinomatosis does not appear on the records, and metastasis appears but once,—Case 3,—though here there is some doubt as to where the disease was primary. In 2 of the cases reported no growth in the pharynx was suspected. In 1 case—No. 11—the patient came for the removal of enlarged glands supposed to be tubercular; in the other,—No. 14,—for trifacial neuralgia, for which exsection of the Gasserian ganglion had been urged, and would have been submitted to had not the patient consulted Dr. Sadowski who suspected nasopharyngeal trouble and sent her to me. She had had trifacial neuralgia for a year before the growth attained sufficient size to occlude one posterior naris.

Inspection of the fauces will show nothing early, later a bulging downward and forward of the velum. Anterior rhinoscopy might show at least the presence of a growth of some kind if the nasal passages were unobstructed and the soft tissues contracted with cocain and adrenalin. Posterior rhinoscopy would reveal a warty ulcerating mass in the later stages; early it is altogether possible that a hasty routine examination might yield a diagnosis of adenoids. Indeed, it seems to the writer, from observation of his patient, that there might have been a stage where nothing but the microscope could have demonstrated that there was anything more than adenoid hypertrophy.

As to *touch,* one text-book refers to the "hard warty feel so characteristic of this form of cancer." Prior to seeing this I had written that "it would be impossible for a surgeon who had once experienced the soft mushy sensation of burying his finger to the bone in an ulcerating epithelioma of the nasopharynx to mistake it for anything else excluding tuberculosis and syphilis," but both myself and the author referred to each evidently had a certain stage of a single case in mind. In my case the sensation was like a mass of fresh blood clots, though the enlarged Eustachian eminence was hard. Case 13 is described as "very soft" to the touch. Doubtless the density varies so greatly that touch will serve little beyond determining a broad-surfaced, broad-based, undefined growth bleeding freely from the fingering.

DIAGNOSIS.

The text-books describe the chief characteristics of carcinoma of the nasopharynx as sessile tumors causing nasal stenosis, dyspnea, epistaxis, coryza, postnasal discharge of bloody, fetid, ichorous secretion, enlargement of cervical lymphatic glands, ear-ache, deafness and cachexia—occurring in a patient over 30 years of age. Doubtless at some time or other most of these symptoms appear, but they are of little use for early diagnosis. Only rhinoscopy long before the appearance of any symptom of malignant neoplasm will make the early diagnosis which is the desideratum in all cancers. This early diagnosis is only likely to happen in a patient coming for some other condition. In this stage, before the infiltration becomes a distinct neoplasm diagnosis is difficult if not impossible. Fetor is not always present in carcinoma (usually not prior to ulceration), is present always in ulcerating gummata, frequently in tuberculosis, always in sarcomata and ulcerating fibro-

Case of Miss J. P.

mata. Pain is not an aid to a differential diagnosis, as shown by our table. Glandular involvement being present in 93 per cent. of the cases, its absence would exclude carcinoma almost positively, if we could be sure there were no involvement of the deep glands. Its presence is not to be relied on to exclude sarcoma, nor is any other symptom. It would be misleading to follow the text-books and exclude carcinoma if the patient were under 30, for 14 per cent. of the cases occurred before that age. Then we should always remember Rehn's case of laryngeal carcinoma at 3 years of age. Theoretically, it should be possible in the nasopharynx at the same age. Touch will determine a fibroma to have a narrow base in proportion to its size, with a smooth, rounded projection toward the oropharynx, its fixedness, firm consistence and sharp definition resembling and usually exceeding those of the Eustachian eminence, which we all so readily distinguish in adenectomy. Usually a fibroma attains a large size and produces mechanical difficulties before affecting the general health or producing much pain, whereas our table shows obstructive dysphagia present in only 2 cases—14 per cent.—and in these it was a very late symptom, appearing long after cachexia became marked. In 2 cases cachexia appeared before the growth attained sufficient bulk to produce even nasal stenosis. Fibroma is rare after 30, when it is apt to retrogress, or at least cease to progress. Both fibroma and sarcoma of the nasopharynx are usually accompanied by much more hemorrhage and bloody discharge than the records show

in carcinoma. In the early stages, carcinoma may simulate adenoids, as in Case 11, or both conditions may coexist, as in the writer's case—No. 14.

Syphilis as an ulcer or a gumma can be excluded with certainty only by the failure of specific treatment to benefit. In the writer's case of carcinoma the pain was very much increased by potassium iodid, diminishing when discontinued, increasing again when resumed. This does not seem strange when it is remembered how some patients complain of aching in the parotids and at the angles of the lower jaws, and how others are affected with coryza, from iodism.

Pharyngo-mycosis rarely extends to the nasopharynx, but its appearance and history ought to render its recognition easy without the microscope.

The writer has not seen a report of a case of lupus —as distinct from tuberculosis—of the nasopharynx, though as it occurs in the oropharynx and nasal passages it would seem a possibility. The history, cicatrices, and associated skin lesion of lupus vulgaris should distinguish it.

Tuberculosis might simulate an ulcerating carcinoma, but it would not be fungoid and warty, and with its temperature record, thick, tenacious, bacillus-laden secretion, pulmonary and laryngeal accompaniment, does not seem difficult of exclusion. However, a hair-splitting clinical diagnosis is not worth while, for the microscope is the 'final arbiter"; but the microscopist's negative report must not be acted on unless a large specimen has been submitted to him. When a clinical diagnosis of carcinoma has been made it would seem best to anesthetize, make a thorough digital examination and remove all of the growth that can be readily removed. This will permit of a microscopic examination of value even if negative. If it prove carcinoma, the best possible has been done; if otherwise, a more radical operation may be done if deemed advisable.

PROGNOSIS.

Termination is utterly hopeless with present methods of treatment. As to duration, from two to six years may be promised under palliative treatment. Radical operation, if survived, will shorten life to a few months, though one patient survived a year. The progress of the disease in the published cases seems quite slow in the early stages, rapid in the later.

TREATMENT.

This may be classed under two heads, radical and palliative. Special surgeons favor palliative methods by natural channels, general surgeons favor radical operations with radical preliminry operations to create an artificial channel. The aim of the radical operator is to get the growth out; the palliative advocate, recognizing the hopelessness of thorough removal, aims at comfort. The palliative methods include the cold snare, cutting forceps, possibly the curette in very soft growths, electrolysis, the galvanocautery, lactic and nitric acids, and possibly some other caustics, local soothing applications, and Chian turpentine internally. Extirpation of the enlarged lymphatics should probably also be included here. The 14 cases afford us examples of only the snare, forceps, curette, galvanocautery, glandular extirpation, Chian turpentine and absolute alcohol injections.

Radical procedures, of which there are many, vary considerably in technique, but they all contemplate the creation of an artificial channel by the resection, temporary or permanent, of more or less of the inferior or superior maxillary and palatine bones. Three cases are reported as radically operated on. Case 2 lived a year, by which time repullulation had filled the space left by the exsection of the superior maxilla. Case 3 survived exsection of both superior maxillæ a few weeks. Case 8 survived an Annandale operation two months. There are no records of deaths on the table from preliminary operations for nasopharyngeal carcinoma, as there are for fibroma in the same location, probably because of the rarity of the disease and consequent fewness of the operations. There may be cases in which radical preliminary operations are necessary for the removal of fibromata, but malignant disease confronts us with a somewhat different problem. There is no hope here of retrograde metamorphosis during the third decade. It is not a question of limiting the bulk within harmless bounds. Since no one has yet reported a cure by radical operation there seems to be no basis for argument. It can not increase comfort to add postoperative anemia to cancerous cachexia. There is the laudable ambition to eradicate the disease so thoroughly that there will be no return, but the results with carcinoma more accessibly located, are not such as to warrant the procedure, and, furthermore, in the writer's opinion, thoroughness is not as attainable at the bottom of a deep artificial channel, necessarily different in every case, as through the old familiar natural passages where every remaining landmark is familiar from manipulation of thousands of cases and every variation from the normal is apparent to the rhinologist's touch, and where combating hemorrhage does not take up so much valuable time.

Contrast these radical operations, with their mutilation, disfigurement and early death, to the example of palliative treatment shown by Case 6, where Bosworth, by gentle manipulation of the cold snare, removed the bulk of the growth, followed by quiescence and comparative comfort. True, this was one of the cases in which there was little pain, but radical operations, followed in a few weeks by recurrence of the growth, can not offer any hope of controlling pain if present. In Case 4, McBride prescribed Chian turpentine, which he considers his duty in all cases of cancer, though he has seen no marked results and the effect in this case is not recorded. In Case 11, the removal by the snare of what were at the time thought to be adenoids notwithstanding the age of the patient—40—gave complete relief for 3½ years, when the sudden onset of deafness and very loud tinnitus marked the attainment of a large-sized recurrence, on which injections of absolute alcohol had no appreciable effect. In the writer's case—No. 14—removal of the growth with the cold snare, forceps and very gentle curetting was followed by a month of little or no pain and a period of quiescence. In the second month periodical attacks of pain commenced and were easily controlled by morphin. At the present time—three months after the operation—the patient goes about the house, and is happy and cheerful in the belief that the growth will not return. About one grain of morhpin sulphate at bedtime controls the pain, rarely any being needed during the day. The addition of 1/100 grain of atropin sulphate seems to prevent nausea from the morphin. The only local application that seems to increase comfort and not to irritate is that suggested by Kyle for carcinoma of the nasal passages—aristol, 20 grains to the ounce of zinc stearate. Iodoform is disagreeable, and used in the nasopharynx daily for months, might cause toxic symptoms. Detergent and antiseptic gargles

are used to clear the oropharynx of secretion, but their use in the nasopharynx by way of either nose or mouth seemed to irritate in this case. None of the cases were treated by electrolysis, but in Case 13 Roncalli used galvanic ignipuncture under the preliminary diagnosis of angioma or fibro-angioma, and thinks he did harm; hastening the fatal result, though the part of the growth treated, diminished, while the untreated portion increased in bulk. In Case 10 extirpation of the enlarged lymphatic glands seemed to add comfort for a time. In Case 11 extirpation of the glands afforded relief from headache. As to whether the extirpation in these two cases lengthened or shortened life, we have no basis for an opinion. But if there is a chance of making the patient more comfortable there seems to be no contra-indication, as the healing was prompt and no ill result seems to have followed. In Case 6 the glands sloughed out and healed over, followed by rapid increase in cachexia. Dawbarn's method of ligation of the external carotids and a number of their branches has never been tried for the starvation of carcinoma of the nasopharynx.

CONCLUSIONS.

In conclusion, the points that I should like to hear discussed by this able assemblage are these: 1. Why is carcinoma of the nasopharynx relatively so rare? 2. Has the relative infrequency of carcinoma of the nasopharynx any bearing on the subject of irritation in the etiology of cancer? 3. Is a radical operation ever justifiable in undoubted carcinoma of the nasopharynx? 4. If justifiable in the very early stages, at what stage does a radical operation become unjustifiable.? 5. If a radical operation be unjustifiable, what can we do to make the termination euthanasia, not cacothanasia?

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DETERMINATION OF THE MOTOR ACTIVITY OF THE STOMACH.—Schuell describes in *Fortschritte der Med.*, No. 18, an accurate method of determining the status of the gastric motor functions. After a test meal the stomach is rinsed out in three hours. The contents are filtered, the filtrate dried and then weighed. It weighs about five grams in normal conditions, and variations in this weight indicate different pathologic conditions.

CASE OF NASAL SARCOMA, WITH REMARKS.*

DUNBAR ROY, A.B., M.D.

Clinical Professor of Eye, Ear, Nose and Throat Diseases, Atlanta College of Physicians and Surgeons; Oculist and Aurist to the Grady Hospital; Fellow of the American Laryngological, Rhinological and Otological Society; Associate Member of the American Ophthalmological Society, etc.

ATLANTA, GA.

Sarcomata within the last few years has certainly seemed to be on the increase. This may be due to the fact of a closer microscopic examination being made than formerly of all suspected tumors, especially those occurring in the nasal passages. Nor can rhinologists be too diligent in this direction. It is not my intention to go into the pathology of the sarcoma, but simply to add a few personal experiences to the report of a case.

Warren, in his late book on "Surgical Pathology," states "that sarcoma of the nasal passages is not a very rare disease." Bosworth has collected 41 published cases, but I believe this number is but a small proportion of the cases which have occurred. If statistics were really obtainable, they would show a much larger percentage of these growths than is at present the case.

The round-cell and alveolar forms of sarcoma seem to be the prevailing types of the growth occurring in the nasal passages, although there are sometimes seen the fibrosarcoma, myxosarcoma, and even angiosarcoma and melanosarcoma. Some writers hold that it is extremely rare for a sarcoma to originate primarily in the nasal passages, but that such a one nearly always has its origin in one of the continuous cavities, especially the maxillary antrum. This is a difficult question to decide, since the rhinologist rarely sees a case and follows it from its very incipiency. Warren says that the tumors are pediculated with about equal frequency on the outer and inner wall of the nasal passages. Histories of reported cases do not seem to substantiate this statement, rather showing a greater frequency on and around the turbinates than at any other point. The average age at which the disease appears is about 40 years, and it is seen about equally between males and females. Warren further says, that sarcoma does not appear to show the same malignant tendencies in the nasal passages that it does in other localities. There have been several cases reported where the disease had not shown a recurrence several months after its removal.

ETIOLOGY.

The etiology of sarcoma appears as yet to be enveloped in obscurity, but the majority of pathologists incline to the theory of Cohnheim, that it depends on a disturbance of embryonic tissue. Nasse says that trauma is more frequently the cause of sarcoma than any other tumor, and observation teaches that there is certainly a close relationship between the two, especially in this class of tumors occurring in the nose. In my own mind I firmly believe that there is a possibility of benign growth in the nasal passages, such as the myxomata, being transformed into malignancy through traumatic irritation. Such a statement is difficult to verify, since I have been unable to find any authentic case which has been traced from its very incipiency to the point where it has become malignant. There is enough evidence to show that this possible transformation has been seriously considered by others.

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. Emil Mayer, W. E. Casselberry and J. N. Mackenzie.

Last year, Würdemann, of Milwaukee, reported a case of sarcoma of the nasal passages in which he seemed very much inclined to the belief that it was a transformation from benign to malignant neoplasm through rough instrumental manipulation. If such then be a possibility, how necessary it is for the rhinologist to be certain of the character of every growth which he finds in the nose, and the radical removal in the very beginning, when there are the least signs of malignancy, and this too with the least traumatism possible.

PROGNOSIS.

The prognosis in these cases is anything but favorable, and any treatment which will stay the progress of the growth should be welcomed. The case which I report is cited for two reasons: 1, because of the probable transformation of a benign into a malignant growth; and 2, because of the surgical method used in the treatment.

Miss B., aged 28, from the southern part of the state, was referred to me in June, 1899. Her family history was most excellent. The patient herself had always been perfectly healthy up to February, 1899, when the right nasal cavity began to stop up and cause difficulty in breathing. She consulted her family physician, who told her she had a polypus and at the same time removed it with a pair of scissors. In a short time the growth returned, and he again removed it. After a short interval the nasal cavity still being stopped she went to a neighboring city to consult a surgeon. He told her that it was a surface polypus and could be removed. She remained there a month and at various times the growth was curetted and torn away. There was always excessive hemorrhage at each operation. At the end of a month the patient returned home with the assurance that the place would soon heal up. However, the growth gradually increased in size, the whole side of the face on that side swelling enormously and a swelling also appeared in the roof of the mouth.

On June 6, four months after the appearance of the first symptoms, she came to Atlanta. On examination I found the right nasal cavity, septum and right antrum involved with a growth which was evidently a sarcoma. The mother was advised that the case was hopeless, but at her solicitation I began a trial of Coley's mixture of erysipelatous toxins. This was used for two weeks with decided reactions, but no change in the growth. At this time Dr. W. P. Nicholson, a general surgeon, saw the case with me and advised, as a last resort, not as a curative but palliative, the cutting of the blood-supply to the tumor, by ligating both external carotids. The consent was given, and on June 19, at St. Joseph' Infirmary, Dr. Nicholson ligated both external carotids, the operation being accomplished in half an hour. The patient reacted nicely from the operation. On the second day the temperature rose to 102, but only for a day. The only thing complained of was pain on deglutition, on account of the soreness in the pharyngeal muscles. The growth seemed to decrease some in size after the operation and began to lose its fiery-red color so noticeable previously. The color became more of a purplish hue. For a few days there seemed to be an improvement and the patient complained much less of the throbbing sensation. No material change being noticed, at the end of two weeks, the patient gradually growing weaker every day, she was taken home. She died on August 16, seven months after the appearance of the first symptoms.

The prognosis in this case was unfavorable from the very beginning. It is certainly one which adds something to the idea of transformation of benign into malignant neoplasms. The question as to whether the growth considered in the beginning as a mucous polypus was not even then malignant could not be answered, as no microscopic examination was made, but it at least opens up the question for further investigation. Another interesting point was the rapidity of growth within the space of six months. Kyle, in his late textbook, says that the nasal sarcomata are of slow growth, and this view is held by the majority of writers.

The symptoms of severe bleeding whenever any growth within the nasal cavities is touched should make us very suspicious, and such should be removed early in the most radical way possible. I am opposed to the vigorous curetting of any growth in the nose, for if transformation of benign into malignant growths is possible, then curetting opens up the best chance for such to occur.

The thorough cutting-off of the blood supply to these growths, by ligating the vessels supplying the same, has recently been strongly advocated. One case is not sufficient for drawing deductions as to the curative effect of any treatment. In the case reported both external carotids were tied, so as to remove all possible source of bilateral anastomosis. Our operation produced no lasting beneficial effect. Such an operation might be effective in the early stages of the growth, but I do not think it will be of any benefit after marked infiltration of the tissues has occurred.

The use of the toxins was not persisted in because, as is well known, such are effective by destroying the tumor, and if such had happened in this case, the disfigurement would have been worse than death.

REPORT ON A CASE OF "EPITHELIOMA" INVOLVING TONSIL, FAUCIAL PILLAR, TONGUE AND BUCCAL SURFACE, WITH TREATMENT AND APPARENT CURE.*

S. A. OREN, M.D.
LANARK, ILL.

The history of the patient is as follows: H. S., a male, aged 73, white, married, father of a family of seven healthy adult children, had always enjoyed good health, and had not been sick enough to call a physician in thirty years; to all intents and purposes he was a healthy, robust, active man. His family history was negative. He formerly used tobacco, but not of late years; was not a total abstainer, though not a drinking man. He denied ever having had a specific lesion.

About December, 1899, while in Iowa, I was asked to look at the case. At that time the patient was complaining of a little sore throat, which he was pleased to call "a canker sore." A little white spot was discovered on the left anterior faucial pillar, rather high up, not larger than a pin-head, which I thought a simple ulcer, and so prescribed a simple application of powdered borax and a mouth wash.

Early in March, 1900, I was again asked to see the case. At that time the tonsil seemed to be involved, and the anterior faucial pillar had a rose-colored ulcer about one-half inch in diameter, surrounded by a zone of fiery inflamed tissue radiating in every direction. At this time the case was being occasionally treated by a local physician, with a gargle of some sort. The possibility of the case being malignant was suggested, and I advised thorough cleansing with an antiseptic spray, then cauterization, to be followed by a dust of iodoform.

I heard nothing more of the case until some time late in April, when a letter was received from his

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. Emil Mayer, W. E. Casselberry and J. N. Mackenzie.

daughter, appealing to me for advice, stating that the throat was much worse, that they had consulted with two very able physicians, neither one of whom gave him any encouragement, and advised him to go to a hospital to have treatment or removal of the growth. One of them, however, suggested the possibility of it being a gumma, and, in addition to a local wash, had the patient on iodid of potassium in "auld lang syne" doses for some three weeks. The throat was steadily growing worse and the ulcer spreading.

On May 1, 1900, Dr. S. S. Bishop and Dr. Moreau R. Brown saw the case with me. At this time there was an angry ulcer on the anterior faucial pillar. The tonsil seemed entirely absent. Forward from the faucial pillar, alongside of the tongue, was an angry ulcer about an inch in length, with four ashy-colored coxcomb growths projecting above the surface; also a similar ulcer extending along outside of the gum and contiguous buccal mucous membrane, the gum being spongy and honeycombed. The patient complained of lancinating pains extending to the left ear, and much difficulty in swallowing, but otherwise seemed in good health.

Dr. Bishop thought the growth malignant, and wished Dr. Nicholas Senn to see the case; after the latter had made a careful examination, he pronounced it malignant, and was certain that the glands of the neck were involved, and probably the inferior maxillary. As treatment, he suggested Kocher's incision, or modified Kocher's incision, removal of a portion of the tongue, faucial pillar, soft palate, glands of the neck, and probably a portion of the inferior maxillary. To this operation the patient refused to consent.

Before going to see Dr. Senn, a section of the growth was sent to a pathologist for examination, the report of which I herewith submit:

CHICAGO, May 2, 1900.

Drs. S. S. Bishop and S. A. Oren, Lanark, Ill.

Dear Sirs:—Sections show a covering of squamous epithelium—underneath this a mass of epithelioma—squamous. There are large numbers of horny pearls. There are many nests of younger and more active cells—epithelioma shows round cell infiltration beyond the epithelioma. Diagnosis, epithelioma.

Very truly,

COLUMBUS MEDICAL LABORATORY.

Per Evans.

Dr. Moreau R. Brown suggested palliative treatment, consisting of iodoform and ether spray locally, and continuance of the iodid and mercury internally.

Thus we have the history of the case with the diagnosis of epithelioma confirmed by the laboratory, consequently a serious prognosis.

Discouraged and despondent as the patient was, he consented to return with me and remain until it could be ascertained whether or not he could be helped. He was kept on potassium iodid and mercury internally on general principles. He called at my office morning, noon and night. For a few days a spray of iodoform and ether was used, then changed to iatrol. Later, I washed the ulcer with a spray of listerin, using considerable air-pressure, then dusted with iatrol, using air-pressure sufficient to drive the powder to the very bottom of the spongy ulcer, then covering with a spray of ichthyol and oil.

Under this treatment the inflammation greatly subsided, and a cure was apparently in sight. Then it would increase and spread again. On May 22, noticing that the place where the pathologic specimen had been removed healed over kindly, I took scissors and snipped off all the coxcomb growth, curetted and cauterized the base. A hole one-eighth of an inch in diameter had ulcerated through the faucial pillar at this time, and fiery rays of inflammation extended well up on the soft palate.

Both local and internal treatment were continued, as before mentioned, until June 15; oftentimes the trouble seemed under control, but again apparently spread. A hypodermic injection of pure alcohol was made in several places outside of the periphery of the ulcer, and in and above the anterior faucial pillar, which was followed by considerable inflammation, swelling and pain. This, however, subsided in a few days, after which there seemed to be a circumscribed hard mass with a fiery point near the original seat.

On June 22, assisted by my son, Dr. S. L. Oren, after injecting a solution of suprarenal extract and cocain, with scissors, scalpel and forceps, I dissected, out of the side of the tongue and buccal wall, a mass about the size of an almond, curetted the base of the wound, also all apparent diseased tissue, cauterized with nitric acid, dusted with iatrol and sprayed with ichthyol and oil. This treatment was continued three times a day until July 12, 1900, when patient was apparently cured, and returned to his home in Iowa, to all intents and purposes a well man. He has taken no medicine for months, and up to this date, June 1, 1901, has no sign of any recurrence, and is as healthy as average men of his age. I acknowledge my obligations to Drs. Bishop, Brown, and Senn. It will be noticed that this case had double treatment—internally, as if specific, locally, as if malignant.

That the alcohol injection checked the spreading, there is no doubt in my mind; that the close observation and frequency of the treatment, together with the thoroughness of the applications, had much to do with the result, there can be but little question. If it was epithelioma, then we learn that these cases need closer watching than is usually given, as well as more energetic treatment.

This case is reported that it may stimulate us not to abandon these apparently hopeless cases. I saw one other similar case years ago, which was not treated, except by an antiseptic mouth wash, result fatally. The same was expected in this case.

NOTE: July 6, 1901, case shows no signs of return at this date.

DISCUSSION ON PAPERS OF DRS. JACKSON, ROY AND OREN.

DR. O. T. FREER, Chicago—In Dr. Roy's paper nasal mucous polypi are referred to as myxomata. Modern histologists consider these growths fibromata and not myxomata. Then, as to the transformation of mucous polypi into malignant growths, I think that only actual histologic demonstration of such change should be accepted as evidence of it. A growing sarcoma or carcinoma of the nose produces a chronic congestion of the surrounding mucosa that is apt to take the form of polypoid hypertrophy. For this reason polypi may be removed several times from the affected naris before the deeper seated malignant growth has obtained sufficient size to become apparent. The malignant nasal growths are thus hidden and covered by the polypi created by their advance and the picture presented is apt to lead to the false conclusion that there is a transformation from a benign nasal mucous polypus to a malignant growth.

Semon's statistics prove that the change from a benign to a malignant tumor is certainly a matter of such rarity that its existence may be doubted. This is the opinion of Jurasez, who thinks the danger of malignant changes in benign neoplasms so slight that it need have no weight in the prognosis. It certainly need not deter from operative procedures on

benign growths on account of possibly exciting malignant change.

Benign growths are more in gross appearance than in fact near relatives of malignant ones; histologically they are closely allied to the hyperplasias. It is not common experience to find that the cell type of either the benign or malignant tumors undergoes change and though a malignant tumor can select a benign growth for its origin as it can other parts of the body, the actual change of the component cells of a fibroma—and mucous polypi are fibromata—into the spindle or round cell of the sarcoma or the entirely different type, the epithelial carcinoma, seems to me highly improbable.

I will state in conclusion that no one should speak of the transformation of a benign into a malignant growth unless he can prove his statement by microscopic demonstration of portions of the neoplasm before, during and after completion of such transformation. Otherwise it is well to keep silent on the subject.

DR. JOHN N. MACKENZIE, Baltimore—This is a subject of very great importance and I can not allow the discussion to close without referring to one phase of the cancer question in the upper air-tract. I do not desire to be at all personal or speak in words of criticism of anything said this afternoon. The gentlemen have simply followed the universal practice which is authoritatively given in text-books. They have followed the general rule which is usually obeyed under the circumstances. There is no chapter in the whole history of laryngology that needs revision more than the chapter on carcinoma of the upper air-passages. It will not only have to be revised, but rewritten. I wish again to go on record as entering an earnest protest against the reckless removal of portions of a suspected malignant growth for microscopic examination. Of course, sometimes a microscopic examination will have to be made, but until every resource and refinement of clinical examination has been exhausted, the microscopic examination should not be resorted to. The microscope should be the court of last appeal. The objection I have urged to the removal of a piece of suspected neoplasm for microscopic examination is that it subjects the patient at once to the danger of autoinfection at the point of incision, and to the development of metastases elsewhere. In the second place, it stimulates the growth of cancer, and thirdly, the microscopic examination is often unsatisfactory and in the larynx itself sometimes practically impossible. When a doubtful case is presented the laryngologist loses no time in removing a piece for microscopic examination, and that too often means but the beginning of the end. In dealing with this disease we should remember that we are dealing with cancer, an infectious process. We should leave the microscope severely alone until we have exhausted every possible refinement of clinical diagnosis. The question of the operability of cancer often comes up. Whether these cases are operable or not should be decided on general surgical principles. If they are operable let them be radically operated upon; if not, let them alone. More harm is done and life is often shortened by curetting and taking off pieces, in cancer of the larynx, than by any other known procedure. I want again to go on record, in the face of the adverse criticism I have received from many, and reiterate what I have said before with all the emphasis at my command.

DR. C. M. COBB, Lynn, Mass.—I would like to call attention to the amelioration which may be obtained through the use of formalin. It certainly has a very good effect on the ulceration after there is breaking down. The injection of a weak solution does no harm other than the pain it produces. If you inject a solution into the growth it will produce a pain that lasts for a number of hours, but it does seem to favorably influence the growth.

DR. J. HOLINGER, Chicago—I do not like to see this Section go on record as having listened to the report of a case of carcinoma of the tonsil that has been entirely cured, and nobody object to the possibility of such a thing or to the undoubted reality of the fact. There are just a few possibilities that may explain the result that we have heard. We know that there are a number of possibilities that may suggest, especially in the tonsils, the idea of the microscopic finding of carcinoma. The specific growth may have the identical appearance of a malignant growth in the tonsil. The Doctor tells us that he used specific treatment at the same time. I do not think that we should rely too much upon the microscopic diagnosis and call the case one of pure cancer of the tonsils.

DR. C. JACKSON, Pittsburg, in closing—In regard to Dr. Freer's statement, that in no case has malignant growth of the upper air-passages followed a benign growth, I would refer to a case reported by Ward, where a complete removal of a laryngeal papilloma, leaving no tissue behind, was followed by carcinoma. The carcinoma having occurred after a complete removal of the papilloma, would seem to indicate that it was not a simple papillomatous covering over a carcinomatous growth. The statement by our esteemed chairman that the text-books should be revised in regard to carcinoma of the upper air-passages is certainly true as to the naso-pharynx. I have found the text-books in that one department give statements that are radically wrong in the light of my analysis of reported cases. Of course some of the writers may have seen cases that they did not report. In regard to metastases following the removal of specimens for microscopic examination, I will say that, in regard to the naso-pharynx, of the eight cases in which specimens were removed in none were metastases reported. I doubt if that great desideratum, a very early diagnosis, can be made without the microscope. In regard to operative treatment by removing portions of a radically inoperable growth, Bosworth's case survived a year and was comparatively comfortable; Brown's case survived three years after removal with the snare. The let-alone plan yielded no better results in any case.

DR. DUNBAR ROY, Atlanta, Ga., in closing—In regard to formalin in the case reported, I was satisfied that nothing would do the patient any good, although I used formalin by injection and also by application on the surface in varying strengths. I used the formalin as high as 20 per cent., but it had no effect whatever. I am in full accord with Dr. Mackenzie in regard to his views. In the short professional life I have had so far in nose and throat work I have seen four cases of naso-pharyngeal sarcoma, and I have seen two cases of nasal sarcoma. The case I reported, when it came to me, was in the state where practically nothing could be done. The question of the change from benign into malignant neoplasm I do not think is yet settled, nor will it be settled by the microscope. That things do occur that we can not explain is true every day and by theoretical reasoning we can not always explain the changes. Where the diagnosis can be made without the microscope we should not open up any point that might lead to the spread of malignancy.

DR. S. A. OREN, Lanark, Ill., in closing—I have reported the case as one of apparent cure. We have the clinical diagnosis by very able authority on epithelioma, and we have the laboratory diagnosis of epithelioma, yet I have not said that I was not doubtful as to its being epithelioma. I have my opinions in regard to it, but with all the inquiry I could make I could get nothing to show that it was a specific case. I am perhaps a crank on iodids. In the majority of cases of kindred troubles, whether I can get any specific history or not, I put the patients on iodids, and usually get pretty good results. The diagnosis in this case was made by as good authority, both clinical and microscopic, as we could get, and I myself do not care to criticise either the laboratory diagnosis or the authority I called in consultation. Others can do so if they choose, I have only given you the results and the treatment. I have had one other case which appeared to be an epithelioma, in which I injected alcohol in the periphery, and then dissected the growth out. I think there is a great deal in the injections of absolute alcohol in the healthy tissue to check the spread of such growths.

It will be noticed that this case grew steadily worse for weeks under specific treatment, and did not improve until after local treatment was vigorously and frequently repeated. This I also take as evidence of its not being specific and confirmatory of the diagnosis of epithelioma.

FREIBURG UNIVERSITY has conferred an honorary degree on the Khan N. H. Choksy, superintendent of the Bombay general hospital.

THE BRITISH CONGRESS ON TUBERCULOSIS.

Held in London, July 22 to 26, 1901.

LONDON, July 26, 1901.

Opening Exercises.

The British Congress on Tuberculosis has been a great success and promises to be fraught with results of the highest importance. The Congress was opened on July 22 and attended by the 2000 members from all parts of the civilized world. Arrangements of the most elaborate and complete character had been made and the proceedings were gone through in the most orderly fashion and without a hitch. H. R. H. the Duke of Cambridge, at the request of the King, opened the Congress. Seated around him were diplomatic representatives of almost every civilized power, as well as the eminent physicians specially delegated by their governments. Among those present on the platform were Mr. Choate (American ambassador), M. Cambon (French ambassador), the Netherlands, Greek, Swedish, Portugese, Danish, Roumanian, Servian and Peruvian ministers; representatives of the governments of the British colonies; the presidents of the Colleges of Physicians and Surgeons of London, Edinburgh, Dublin and Glasgow; Lord Lister, and many other well-known medical men. A very strong contingent of Americans were present. Foreign governments and medical societies were strongly represented. Thus the French government sent no less than 23 delegates. In addition various French medical societies sent a number of delegates: L'Académie de Médecine, 4; Société de Biologie, 3; Société Médicale des Hôpitaux de Paris, 6, etc. German medical societies were also well represented, but not so strongly. The American delegates numbered 30, and represented the following institutions: Board of Agriculture, Universities of Michigan and Pennsylvania, State of Michigan, American Academy of Medicine, Massachusetts General Hospital, Boston Board of Health, American Climatological Association, American Medical Association, Pennsylvania Society for Prevention of Tuberculosis, Chicago Medical Society, Chicago Otological and Ophthalmological Society, Mississippi Valley Association, Commonwealth of Massachusetts, American Veterinary Medical Association. Town and borough councils and corporations of the United Kingdom were largely represented. The arrangements were excellent and the proceedings were marked by great cordiality and animation. A long list of speeches of representatives of the various countries were disposed of in about half an hour. They were marked by admirable brevity and to the point. Many compliments were made to England as the "native land of hygiene," to use Professor von Schrötter's phrase. Professor Brouardel, the *doyen* of the Medical Faculty of Paris, speaking on behalf of the French Republic, said that nothing could be done in the prevention of tuberculosis without public opinion, which was effectually enlisted and stimulated by those in high places. The whole ceremony was thoroughly successful.

MR. MALCOLM MORRIS, the honorary secretary-general, then read his report. He said that the movement originated at the German Congress on Tuberculosis held at Berlin in 1889, when representations were made to the British delegates as to the desirability of a London Congress. The delegates reported the matter to the National Association for the Prevention of Consumption, which took the necessary steps. Programs and circulars were sent to representatives of medical, sanitary and veterinary science, and to prominent persons in other departments of science, agriculture, architecture, education, commerce and philanthropy. Invitations were sent to the foreign governments, and to all the Colonies of the Empire. A museum had been established containing exhibits illustrating every known form of tuberculosis in man and animals.

THE DUKE OF CAMBRIDGE sent a telegram to the King informing him of the opening of the Congress. The King replied, welcoming the eminent men belonging to almost every nation who had assembled, and expressing the earnest hope that the valuable information which their deliberations would give to the world would assist in mitigating the dire disease which had baffled medicine.

LORD LANSDOWNE, the foreign secretary, said that the government would have the greatest pleasure in assisting and giving every facility to the Congress. They fully realized the immense significance of the problem. The country was passing through the sorrows of a prolonged war; but no war ever waged had brought such a burden of misfortune to the nations as tuberculosis had from time immemorial.

LORD LISTER said that they met under immeasurably better circumstances than were possible some years ago. They now knew the enemy they had to deal with, which before the discovery of the tubercle bacillus was shrouded in obscurity. Thanks to Pasteur they also knew that that microbe could not originate *de novo* in the human body; that it was always derived from the external world; hence, the splendid prospect of prevention. But they also aimed at cure. In this respect matters were much more hopeful than they had been till quite recently. The physician might learn much from the experiences of the surgeon. In surgical tuberculosis, if irritation of the part were scrupulously avoided and the general health improved, cure could be obtained. The bacillus was swept away and the part became again healthy. The Congress would also be useful by enlisting the aid of the public which was essential to the movement of the suppressing of tuberculosis.

PROFESSOR WILLIAM OSLER, of Baltimore, said that one of the largest American delegations that had ever crossed the Atlantic had come to that Congress. They had not come like some of the "trusts" of which they had heard so much of late; and yet they represented a magnificent "trust." He caused much amusement by saying that the motto of the ordinary "trust" was "damn the public," but their motto was *pro bono publico*. The work of preventing tuberculosis in the United States was being carried on with energy and zeal. He thought the Congress would educate the medical profession, which needed education, and the public which needed it more. Speaking of tuberculosis, he recalled Bunyan's striking phrase "captain of the men of death," and said that this captain had already been reduced to a lieutenant, and would be reduced to an ensign; but he could not hold out the hope of reducing him to a private, and still less of drumming him out of the regiment.

Professor von Schrötter (Austria), M. Montefiore Levi (Belgium), Profs. Gram (Denmark), Brouardel (France), Von Leyden (Germany), Ruata (Italy), Thomassen (Holland), Koranyi (Hungary), Holmboë (Norway), Cortezo (Spain), Printzjold (Sweden), and Dr. Secretan (Switzerland), also addressed the meeting.

Koch's Address on the Combating of Tuberculosis.

The address on this subject which appeared in full in these columns,[1] was delivered by Professor Koch before a large and enthusiastic audience with Lord Lister in the chair, and is undoubtedly the most important and original communication made to the Congress.

In the discussion which followed, Professor Koch was much congratulated on his valuable paper.

PROFESSOR NOCARD could not accept its conclusions with regard to the bovine and human disease. He thought experiments in France demonstrated that it was transmissible from man to cattle and vice-versa.

PROFESSOR BANG, of Denmark, feared that the opinion of so eminent an authority as Dr. Koch, which he could not accept, would be highly detrimental to the efforts now being everywhere made to secure purity of milk.

DR. SIMS WOODHEAD, president of the section on pathology and bacteriology, after paying the highest tribute to the services of the Berlin professor, expressed his own conviction that bovine tuberculosis had played some part in the extension of tuberculosis among mankind. He suggested that experiments should be made in England under the agricultural department, to test the views now propounded.

On the motion of Lord Lister, a warm vote of thanks was accorded to Dr. Koch, the whole company standing.

1. JOUR. A. M. A., July 27, p. 259.

The Notification of Tuberculosis.

DR. HERMANN BIGGS, New York City, in opening the discussion, in the State and Municipal Section, presented a paper, read by Dr. Janeway, dealing with this subject as existing in various cities in the United States. Sanitary regulations having this object have existed in New York and some other States since 1893. The State of New York was, indeed, the first to enforce a scheme of compulsory notification. Later, Michigan, Pennsylvania, and other States had followed the example, but in some places the notification was only voluntary. It might be taken that tuberculosis was preventable, contagious, and not hereditary, and with regard to preventive measures, the following were most important—namely, careful attention to meat and milk, educating the public with regard to the harm arising from bad habits, such as indiscriminate spitting, and the necessity of careful attention to the sputa of consumptives, and the careful disinfection of houses wherein patients had died of consumption. The compulsory notification of tubercle had not been complete. Physicians had been only invited to give information as to patients suffering from tubercle, such information to be treated as confidential; but it was compulsory to notify cases in public institutions, and inspectors were then sent to make inquiries as to their sanitary conditions. In all cases where death occurred from tuberculosis, and it came to the notice of authorities, steps were taken to disinfect the premises where the death occurred. The authorities also, free of charge, examined by their medical officers the sputa of patients if submitted to them by the physician in attendance. After this regulation was introduced, during the first year 4000 samples of sputum were examined. The second year over 5000, and the increase went up in a few years to 8000. Dr. Biggs had made a report to the authorities as to the want of suitable institutions to treat poor tuberculous patients and as to the necessity for such; and that tuberculosis ought to be put more on the basis of the exanthemata. In 1897 it was resolved by the Board of Health of New York that tuberculosis was a dangerous and contagious disease, and that every physician should report to the Sanitary Bureau in writing as to patients suffering from that disease within a week of being called in. A sum of $60,000 was also appropriated to the care of poor tuberculous patients, to afford them better treatment. The notification chiefly applied to pulmonary tuberculosis as the most contagious. The law was not strictly enforced in regard to the notification of private patients by physicians and it could not therefore be said that the regulations were strictly compulsory; but public opinion was gradually diminishing the number of cases not notified. In consequence of these various measures and the better treatment of patients there had been a reduction of 30 per cent. in the mortality arising from tuberculous diseases.

PROFESSOR OSLER, moving a vote of thanks to Dr. Biggs for his paper, said that the Board of Health of New York had the greatest difficulty in resisting Tammany in their endeavor to carry out sanitary reforms. Their success, in spite of this, has been wonderful and formed an object lesson as showing what could be done in spite of opposition.

DR. S. A. KNOPF, New York, then spoke in criticism of some of the papers. He approved of everything said by Dr. Biggs on compulsory notification, provided the sanitary inspector has the power of isolating poor patients in a public sanatorium. Sufficient means must be supplied from public sources for the family when the bread-winner was thus removed. Voluntary notification was good, but if the burden on friends was increased by it he would protest against it. At a conference connected with tenement houses in New York it was shown how terrible an incidence of tubercle there was at such places, and he considered the greatest blot on the sanitary administration of New York was the failure to carry out sanitary regulations in these buildings.

DR. REYNOLDS, Chicago, said that in Chicago they had not come to the conclusion that it was right to insist on the notification of consumption, believing that it was the duty of the government to educate the public in this respect. They had a hospital for the tuberculous poor, and he thought the education of the public was best brought about by the daily visits of physicians, by the public press, and by medical men giving lectures at public institutes.

Prophylaxis of Tuberculosis During Childhood.

DR. S. A. KNOPF, New York, read a paper on the state and individual prophylaxis of tuberculosis during childhood, and the need of children's sanatoria. He said that the prevalence of tubercle in childhood was very great, and was often contracted by contagion, so that consumptives ought to be kept away from children. Even at birth the careless midwife might infect the child by applying her mouth to that of the infant to inflate the lungs. Tuberculous mothers would often put spoons containing food for their children in their own mouths before feeding them. Infection from kissing was also not unknown, or from the application of the mouth to the prepuce after circumcision. Children should be prevented from crawling on the floor in the dust, which often harbored bacilli, and the infant was only too prone to suck its dust-polluted fingers. Lady schoolteachers ought not to be allowed to wear trailing dresses. No teachers or children with early symptoms of tubercle should be allowed to remain at a school, and all the inmates should be examined several times a year for symptoms. Overcrowded tenements, syphilis and alcoholism tended to the production of tubercle, as also the employment of children under 14 years of age in factories for ten hours a day. The giving of poor children at public schools of a periodic sandwich or glass of milk would often ward off the onset of phthisis.

Control of Meat Supplies.

MR. SHIRLEY F. MURPHY, London, communicated a paper entitled "What Administrative Measures Are Necessary for the Prevention of the Sale to the Public of Tuberculous Meat?" He gave a review of the procedures adopted in his country for restraining the sale of diseased meat, of the prevalence of tubercle in cattle, and of the difficulty of inspecting all meat brought into the market, as at the present time there was no need to have an animal presenting signs of disease slaughtered under conditions that would insure its inspection.

COUNCILLOR O'NEILL, M.D., Belfast, referred to meat inspection in his city. For eight years he had had to contend with the butchers, but by studying the means employed on the Continent, he had gained good hints as to what ought to be done to carry out proper meat inspection. In this he had been backed up by his profession. He did not agree with Dr. Koch as to bovine tuberculosis. He was strongly of the opinion that tuberculous meat was not fit for human consumption. There was an abattoir in Belfast where every animal was examined before being slaughtered, and at the market the meat was always examined when killed outside the burough. All meat killed outside the city must be brought for inspection before being exposed for sale, and was stamped by the inspector on the request of the owner.

DR. COGGAN asked whether Dr. O'Neill had ever seen tuberculous meat give rise to human tuberculosis.

DR. O'NEILL could not give any particular case where this result could be proved, but he was firmly convinced that tuberculosis might be acquired in that way.

SIR CHARLES CAMERON, Dublin, thought at present there was not sufficient inspection in many towns, especially where there was no abattoirs. In Dublin there was a public abattoir, but there were also forty private slaughterhouses, so that uniform and sufficient inspection was difficult. He had known a case where in the carcass of an animal which had suffered from pleuropneumonia the lungs of a healthy animal were substituted for the diseased organs. In public abattoirs this could not take place; the carcasses of animals had been known to be brought into Dublin in a hearse to disguise the fact from the authorities. He thought a skilled veterinary surgeon of great service to a sanitary department in attending to this work. There ought to be a systematic examination of all animals, and private slaughterhouses ought to be got rid of by giving equitable compensation to the owners.

DR. MARSDEN, Birkenhead, Eng., said that medical officers of health were meeting under a cloud with regard to tuberculous meat. It seemed that Dr. Koch had thrown a bomb in their midst, which, whether right or wrong, was likely to impair

their influence with sanitary authorities. He did not think that procedure ought to be changed. He knew no medical officer of health who ordered the destruction of animals on account of a trace of tubercle. Public abattoirs were urgently required, and there was no question as to their being necessary, both in urban and rural districts, but then came the question of compensation. A difficulty often arose in inspecting carcasses when the offal and other contents had been removed. He did not believe that the difference between general and localized tubercle was of much use for distinguishing between good and bad meat. He had known the case to be called localized tubercle when every gland in the carcass had been found diseased.

Climatology in the Treatment of Consumption.

SIR DOUGLAS POWELL, the President of the Medical Section, said that tuberculous lesions tend to heal if secured from contamination by putrefactive and suppurative organisms. A good climate might be marred by impurities, and the vivifying power of the sun might be exhausted on organic débris in the atmosphere. The best climates were Switzerland, Egypt, the Riviera, and parts of the Colonies and America; but there were many nooks and sun-traps in the British Isles where good results might be obtained for those who could not go abroad. Gain in weight was not the best test of treatment. The object was not to train the consumptive into a gastronomic athlete. Excess of weight beyond that normal to the individual was a disadvantage.

DR. THEODORE WILLIAMS opened the discussion. He divided climates into, 1, marine; 2, dry; and 3, mountain. Of marine climates the temperate ones of the British Isles were suitable for a large number of cases of chronic pulmonary tuberculosis, especially in its strumous form. The warm climates of Madeira, the Canaries, and the West Indies, were beneficial in catarrhal tuberculosis. Sea voyages were most successful, but the following conditions were necessary: 1, the patient's cabin should be well ventilated, so that abundant fresh air was supplied night and day; 2, the food should be good; 3, the voyage should be in temperate, and not in tropical seas. Sea voyages were most beneficial in, 1, hemorrhagic phthisis; 2, in strumous phthisis, accompanied by affections of glands and joints; 3, in cases of a single cavity. Dry, warm climates included the Egyptian Desert, and the Mediterranean basin. The improvement observed from them was general, more than local. The desert climate appeared to act rather in preventing the spread of the disease than in arresting that present. It seemed to most benefit cases of chronic cavity, especially in elderly persons, and in those incapable of much exercise. The climate of the Riviera and the Mediterranean was more stimulating, but liable to more vicissitudes than that of the desert. It was to be recommended in chronic phthisis, especially when complicated by inflammatory attacks, in strumous and laryngeal phthisis, and in patients with extensive tuberculization of the lungs, who were unable to bear the effects of high altitude. As to mountain climates, the effect in cases of early consolidation was remarkable. Local pulmonary emphysema was produced around the tubercular nodules, and the healthy portions of the lung became hypertrophied, necessitating enlargement of the thorax which could be proved in several ways. Expansion of the chest took place unless opposed by extensive lung fibrosis, or pleuritic adhesions. He suggested that the arrest of the disease was greatly owing to the pressure on the tubercular masses by the increasing bulk of lung tissue, which by emptying vessels, increased caseation and cretification of the tubercle. The high altitudes gave the best results of all climates, but they were most successful in early consolidation where they produced complete arrest in most cases; they were not so successful in cases of excavation. They were more beneficial to the young than to the middle-aged.

Devitalized Air Toxemia a Prime Cause of Tuberculosis.

DR. CHARLES DENISON, of Colorado, read a paper on "Devitalized Air Toxemia a Prime Cause of Tuberculosis." He said that life out of doors was enhanced by altitude. The perfect quality and facility in the use of the open air, the long sunshine, and the stimulation of the low temperature were the factors. The mechanical effects of diminished atmospheric pressure favored the circulation of the blood. The free and constant motion of the air, and the rapid radiation vivified the air by the production of electricity and the resulting ozone. He insisted that free ventilation, and an out-of-door life were more necessary at a high altitude than at the sea level, for the rarity of the air necessitated a greater quantity for breathing. Thus, in a hospital at the sea level 2000 cubic feet per patient would be sufficient; at the elevation of a mile, 2400 feet should be allowed. Tuberculous infection was very rare in Colorado; deaths from tuberculosis acquired in this way formed only 2 per cent. of the total mortality. A remarkable fact was that of all the cases so acquired two-ninths were of meningeal tuberculosis. The wonder was that in the crowded city of Denver in which tuberculous patients often lived with a family and expectorated on the rough wooden floor, infection was so rare.

PROFESSOR LANNELONGUE, Paris, contributed a paper to the discussion prepared in conjunction with Dr. Achard and Dr. Gaillard on the "Comparative Influence of Climate and Individual Resistance in Experimental Tuberculosis." Experiments as to the influence of the climate on the evolution of tuberculosis inoculated in the pleura of guinea-pigs shows that this influence was inconsiderable, and had not the importance clinically attributed to it. It was found in animals, as in man, that different individuals of the same species showed marked differences in the progress of the disease and in the nature of the lesions. Although the guinea-pig was a susceptible animal, some of these animals afforded a remarkable resistance. Some increased in weight, or even became fat, although suffering from generalized tuberculosis. In one guinea-pig a true Pott's disease was produced; there was tuberculous destruction of the third and fourth cervical vertebræ. The conclusion arrived at from these experiments might be thus summed up. In man, as in animals, it was the constitutional peculiarity of the individual—call it what you would—it was the "soil" which determined the progress of the lesion, and whether the disease should remain localized or become general, not the climate in which the patient found himself. Further, it was shown that animals kept under careful conditions of temperature, of freedom from dust in the air, and of rest—such conditions as were observed in sanatoria—had their chances of life prolonged.

SIR HERMANN WEBER, London, said that the previous speakers seemed to hold that though climate was valuable, open air was more important, and this view was to some extent borne out by his experience many years ago. When bakers, or clockmakers for example, came to hospital suffering from the result of their occupation or indoor life, he used to advise them to give up making bread or clocks, and to go about selling these things instead. This haphazard open-air treatment gave excellent results, although it did not include the rest which was so important a factor in sanatorium treatment. His experience did not lead him to take quite as favorable a view of marine climates as Dr. Williams. The high winds which occurred on the sea coast were unfavorable, as could be seen on studying a map of the distribution of consumption. It was not the southwest wind in particular which is disadvantageous, as was said in a recent paper before the Royal Medical and Chirurgical Society, but any strong wind. The climate of the Riviera and Egypt has not always proved satisfactory, but this was probably due to the fact that patients did not put themselves under medical supervision and did foolish things—such as over-exerting themselves—which undid the good effects of climate. Whatever climate was chosen the need of supervision was of the utmost importance, and in estimating the value of any climate it would be well to compare the results attained in that climate before and after sanatorium treatment was available. Although he had a very high opinion of climate he had a still higher opinion of hygienic and dietetic management, and great as were the disadvantages of our English climate we could cure our patients here if they would submit to the hygienic management which formed so important a part of sanatorium treatment.

SIR JOHN WM. MOORE, Dublin, said that in his experience climate played a very secondary part in the treatment and prevention of consumption. In proof of this, he instanced a family who, under the unfavorable conditions of poverty, had gradually overcome the effects of tuberculous infection and had recovered from tuberculosis without leaving Dublin. This has been accomplished not by change of air, but by teaching them how to live and manage themselves hygienically. In striving to prevent tuberculosis we must take into consideration the ignorance of the people, as instanced by the closed bedroom windows. The disadvantages of marine climates and of strong winds might be attributed to a common cause, namely, humidity of the air. Many persons suffered marked depression whenever the air becomes nearly saturated with moisture, and this was the case at and by the sea and with southwest winds.

PROFESSOR GRAM, Denmark, said that in Denmark the mortality from pulmonary tuberculosis was greater inland than on the coast. They, therefore, built all their sanatoria at the seaside.

DR. SANDWITH, Cairo, said that though Egypt was low-lying, a visitor to the desert would be struck with the similarity of the air to that one got on a mountain. Europeans living in Egypt did not develop tuberculosis, though the natives did. This showed the influence of hygiene rather than of climate, for the European lived much in the open air, whilst the native lived in foul air whilst indoors, and with unhygienic surroundings.

A paper by the late DR. AMREIN, Arosa, specially prepared for this Congress, was read by the Honorary Secretary of the Section. The diagrams of the chest of patients showed the unsound side was always best developed in the early stages of pulmonary tuberculosis. The diminished atmospheric pressure of high altitudes tended to bring about the symmetric improvement in the shape and capacity of the chest.

MR. QUARRIER, Glasgow, founder of the Scottish Orphan Homes, gave the experience of sending the children of consumptive parents from Glasgow to a farmhouse in Renfrewshire, and expressed the opinion that locality and climate had not so much to do with the cure of consumption as the practical management of the patient when he was taken in hand. The climate of Scotland was not usually considered good, yet even in this unsatisfactory climate as good results could be obtained as elsewhere, as was shown by the records of the sanatorium connected with the Scottish Orphan Homes.

Therapeutic and Diagnostic Value of Tuberculin.

SIR RICHARD DOUGLAS POWELL presided at the meeting of the combined Sections of Medicine and Pathology, on Wednesday, July 24.

DR. HERON said it was now recognized that tuberculin was worse than useless in cases of tuberculosis with marked infection. For diagnostic purposes tuberculin was most valuable, for it produced its characteristic reaction whenever tuberculosis was present, and by no other means could tuberculosis be diagnosed in man so early. Dr. Heron described at some length a case in which a girl of 17 died twenty-seven hours after the injection of tuberculin for diagnostic purposes, and gave reasons against supposing that tuberculin was the cause of death. He concluded by expressing the belief that the day was not far distant when the discovery of tuberculin would be ranked amongst the most valued of the many gifts mankind already owed to Robert Koch.

PROFESSOR KOCH, Berlin, said that he had shown in 1890 that tuberculin had both a diagnostic and therapeutic value. In his experience a single injection was sufficient to give a correct diagnosis in 97 to 98 per cent. of cattle. If the diagnostic injections were properly made, in the human subject, it was a very valuable method and without danger. The injections should be small enough; in weak patients one-tenth of a milligram was enough to begin with, and no second injection should be given until the temperature was again normal. When the first injection gave a faint reaction a second injection of the same quantity frequently or indeed generally gave a very marked reaction. This was the usual occurrence in tuberculosis. Over 3000 cases had come under his own observation. and from the study of these he had come to the conclusion that as a diagnostic test tuberculin was almost absolute. It was specially valuable in cases of apical pneumonia, particularly when influenza was suspected, and also in cases of pleurisy. He had never seen disadvantageous effects from the use of tuberculin when used as he had directed. In using tuberculin as a therapeutic agent, he felt no doubt that in early uncomplicated cases it was of great value, and when used in such a case a complete cure frequently followed. If the tuberculin was used in cases of tuberculosis which were somewhat advanced, it was necessary, in order to obtain the full value of the tuberculin, that the temperature should be normal before the injections were begun. The treatment, if necessary, should be extended over a considerable period, with intervals of from three to four months, until the injections gave no reaction.

SIR RICHARD DOUGLAS POWELL said that the great difficulty which physicians experienced was that most of the cases of tuberculosis which they saw had raised temperatures, and in the cases of mixed infection even Professor Koch did not think the use of tuberculin was advantageous.

PROFESSOR OSLER said that in the Johns Hopkins Hospital, Baltimore, tuberculin had been used for a considerable time as a routine method of diagnosis. The tuberculin was, in his experience, harmless. As a therapeutic agent, although his experience was not large, he thought it must have a very limited value.

PROFESSOR FRAENKEL, Berlin, pointed out that the great danger attending the use of tuberculin was that the doses were increased too much and at too short intervals, but when these errors were avoided the results in his experience had been most beneficial.

DR. LEHYS, Louvain, gave an account of the experimerts which he had made with dogs and tuberculin. He found that the injection of tuberculin subsequent to that of tubercle bacilli exercised a considerable delaying influence upon the action of the bacilli, whereas without tuberculin, the animals died with disseminated tuberculosis; after tuberculin was used well-marked tubercles were formed and the dogs remained alive for very considerable periods or recovered.

DR. THOMAS C. WILLIAMS disagreed entirely with those who said that tuberculin was harmless. At the Brompton Hospital he had used tuberculin in cases of early phthisis, and was satisfied, first, that the use of tuberculin caused a certain amount of destruction of lung tissue, and, secondly, that even if at the best, tuberculin only caused a remission of the symptoms and did not cure the patient.

PROFESSOR MCCALL ANDERSON, Glasgow, thought that tuberculin was safe. As a diagnostic test it was invaluable, and as a therapeutic agent in external tuberculosis it had been almost invariably beneficial; while in internal tuberculosis relapses which undoubtedly did occur were probably due to other causes than the tuberculin.

DR. FRANCE, Claybury, gave an account of his experiences with the patients in an insane asylum. He inoculated 75 cases, of which 20 were clinically free from tuberculosis. These 20 gave no reaction. Of the 55 suspected cases, 45 reacted; of these 45, 34 had since died, and upon 29, postmortem examinations had been made; each of the 29 showed active tuberculosis. Of the 11 who were still alive, 6 had very obvious tuberculosis. From these figures he concluded that the value of tuberculin in diagnosis was enormous.

DR. MOELLER, Brussels, said he had seen no ill effects from the injection of appropriate doses of tuberculin, but had found that some patients never seemed able to stand a quantity more than about 1 mg., even after repeated injections.

PROFESSOR NOLEN, Leyden, pointed out that tuberculous patients nearly always experienced a rise of temperature if they were out of bed or at work, and did not believe that a rise of temperature was a necessary sign of mixed infection.

DR. HERON, in closing, said that one outcome of the present discussion was the fact that in the earlier treatment with tuberculin too large doses had been given, and that the best effects were undoubtedly obtained by the use of small doses. He had never seen a reaction to tuberculin in a syphilitic patient not suffering from tuberculosis.

PROFESSOR KOCH said that the tuberculin was made from tubercle bacilli of human origin, but that the reaction was produced both in man and in cattle, and, although the two bacilli were different they possessed a common "group" reaction. It was essential that patients who were to be treated with tuberculin should be in bed. Finally, he did not wish anybody to get the idea that he himself thought there could be any antagonism between treatment by tuberculin and the outdoor treatment in or out of sanatoria. He has always insisted that the two shall go on together.

Morphologic and Physiologic Variations of the Tubercle Bacillus.

PROF. G. SIMS WOODHEAD, President of the Section on Pathology, presided at the meeting of that Section, July 23.

DR. ALFRED MOELLER, Berlin, in opening this discussion, said that quite recently it had been shown that all bacilli which were acid-fast were not necessarily tubercle bacilli. The smegma bacillus had the acid-fastness, and might be mistaken for the tubercle bacillus in such excretions as urine. The bacillus of avian tuberculosis differed, according to Fischel, from the tubercle bacillus practically only as regards its pathogenicity. Tuberculosis in cold-blooded animals was probably a modification of mammalian tuberculosis. Bataillon, Terre, and Lubarsch modified mammalian tuberculosis by passage through frogs. The author succeeded in modifying the tubercle bacilli by passage through the slow-worm. After this the bacilli only grew up to 30 C., and even after passage through warm-blooded animals. Recently a series of microorganisms closely resembling the tubercle bacillus had been found in the outer surroundings of man. As well as "Petri Rabinowitsch butter bacillus," there was the timothy bacillus (B. phlei), which had been isolated by him from timothy grass. This bacillus had all the acid-fastness of the tubercle bacillus; it grew better at 37 C. than at 20 C., but in all cases thrived better than the tubercle bacillus. The injection of cultures of the timothy bacillus into the guinea-pig was followed by results similar to those produced by the butter bacillus; but in rabbits when injected intravenously it set up lesions very similar to those caused by the tubercle bacillus. The latter, like all the acid-fast bacteria, appeared to belong to the streptothriciæ.

DR. BULLOCH, London, had repeated the experiment of Aronson, and showed that the constituents of tubercle bacillus and of the B. phlei were fat, fatty acids, wax, lipochrome, proteids, salts, and a residue of a body which contained both a nitrogen nucleus and a polysaccharid, and partook of the nature of chitin. After the removal of the fat the bacilli retained their peculiar staining power, but after the extraction of the wax with boiling benzin or chloroform they were no longer acid-fast. Moreover, the wax itself was acid-fast, so that the acid-fastness was due to the wax. There was no doubt that there were many acid-fast bacilli in nature, some obligatory parasites, some facultative parasites, and others saprophytes, and the relation of these acid-fast bacteria to one another required careful investigation. There was no evidence that there were genuine endospores formed by the members of this group of bacteria.

PROFESSOR ADAMI, Montreal, was impressed with the great differences which were shown by the cultures which came from the different laboratories, and thought that no great progress could be made in determining the relationships of the different acid-fast bacteria until bacteriologists had determined to use standard media. The effects of the use of this standard medium were well exemplified in the cultures of Mr. Swithinbank exhibited in the museum, and he thought that the time had arrived for an international standardization of media.

DR. MARMOREK, Institut Pasteur, Paris, was of the opinion that the close connection which had been shown to exist in the external aspect of the acid-fast bacteria made it very necessary to be careful in making distinctions between the tubercle and paratubercle bacilli. One could say that of all these microbes only those were tuberculous which gave to laboratory animals the lesions known as tuberculous.

DR. KOSSEL, Berlin, pointed out that Weber had not succeeded in producing the "progressive lesions terminated by death," which were so characteristic of the true tubercle bacillus, by the injection of other acid-fast bacilli.

Milk Infection.

DR. LYDIA RABINOWITSCH, Berlin, gave an account of her experiments with the milk of cows, both tuberculous and normal. She had failed to find tubercle bacilli in cows which had stood repeated tests with tuberculin; on the other hand, she had frequently found tubercle bacilli in the milk of cattle which had sound udders. She had failed to find them, on occasion, in the milk of cattle suffering from tuberculous udders, although their presence was easily demonstrated in the tissues of the udders after death. The microscopic examination of the centrifugalized deposit of milk was unsatisfactory. The only reliable test was that of animal experiment, which was wearisome. The tuberculin test was therefore the only rapid and reliable method of diagnosis.

DR. E. J. MCWEENEY said that in his experience tuberculous mastitis was rare. His experiments with 16 cows which reacted to tuberculin showed that unless the udder was tuberculous no tubercle bacilli could be demonstrated in the milk and considered that in such cases the tubercle bacillus gained access from the sputum, dirty cans, etc.

PROFESSOR NOCARD, France, spoke of the danger of spreading tuberculosis in the butter and the cheese-making countries on account of the custom of giving the residue to calves and pigs. He considered that it had been conclusively shown that there was also a great danger for young children. In England the mortality from general tuberculosis had declined 49 per cent. in 90 years, whilst it had been increased in the case of abdominal tuberculosis by 27 per cent. It was very important, therefore, to take every precaution with the milk.

PROFESSOR HAMILTON, Aberdeen, raised the question whether a calf would become tuberculous if suckled by a tuberculous cow with sound udders. According to Wilson, of Aberdeen, the calves were unaffected.

DR. RAVENEL, Philadelphia, said that he inoculated guinea-pigs with the mixed milk from 5 cows which were tuberculous, but which had sound udders; 12.5 per cent. of these died of tuberculosis. In Pennsylvania the tuberculin test was implicitly relied on, but periodic bacteriologic examinations of milk were made, and also inspection by veterinary surgeons.

PROFESSOR WOODHEAD, Cambridge, agreed that feeding experiments were useless for diagnostic purposes, intraperitoneal injections being the only reliable method of diagnosis in the case of milk. He was of the opinion that the milk of a cow with mastitis which gave the tuberculin test should be condemned or sterilized. He felt certain also that the tonsillar glands might be infected through ingestion of tuberculous milk, even though the mucous membrane of the alimentary canal resisted the bacilli.

PROFESSOR BANG, Copenhagen, said that in his experience it was rare to find tubercle bacilli in milk when no tuberculous lesions of the udder were present. Out of 63 cows with advanced tuberculosis, but with healthy udders, only 9 gave milk which produced tubercular lesions in the guinea-pig, and only one which caused the death of the guinea-pig.

Diagnosis of Tuberculosis in Animals.

SIR GEORGE BROWNE presided at the meeting of the Veterinary Section, on July 23.

PROFESSOR DEWAR, principal of the Royal Veterinary College, Edinburgh, in opening the discussion limited his remarks to the bovine species. The first appearance of the disease was not unfrequently manifested by a rough, harsh sound in the throat during respiration. The diagnosis might be confirmed by the presence of tuberculosis in the herd and clinched by the appearance of a lump in the neck, which became adherent to the skin over a single central area. In about 75 per cent. of the cases the thoracic organs were easily affected, and the question became that of diagnosing the disease within the chest. The essential points of distinction from chronic bronchitis, bronchopneumonia, pulmonary hydatids, contagious pleuropneumonia, and the passage of foreign bodies forward from the stomach, were discussed. The prolongation of the vesicular murmur during expiration was pathognomonic of the

disease, but this sign could only be depended on when the surroundings were absolutely quiet. With regard to other organs the udders were affected in about 3 per cent. of the tuberculous cows; swelling was as a rule diffuse, and the physical characters of the milk were little if at all changed. Bacteriologic diagnosis was of most value when applied to the examination of milk, but might also be employed in the investigation of mucus from the nose or pharynx, and of fragments removed from the mamma or elsewhere by means of the pathologic harpoon. Tuberculin was the most efficient, reliable and practical means of diagnosing tuberculosis. For its full and successful use it was necessary, 1, to have a thoroughly reliable tuberculin prepared by a competent pathologic chemist, and carefully tested before being sent out for general use; 2, to keep the herd to be tested quiet and undisturbed for ten or fifteen days prior to the application of the test; 3, to allow the veterinary surgeon perfect freedom and every facility in the application of the test. In the use of the test the temperature should be estimated in relation not to arbitrary standards, but to the average normal temperature of the animal itself; most animals show after the injection a rise of more than 2 F.; more than this should indicate tuberculosis. The temperature should be taken every two hours after the injection. If all these precautions were followed, at least 98 per cent. of the results would be correct and definite.

PROFESSOR NOCARD regarded the tuberculin test as almost infallible. He gave details as to the diagnosis of tuberculous disease of the udders and uterus, and strongly advocated the use of the pathologic harpoon.

DR. MALM, Norway, had had the tuberculin test in constant use since 1891, and strongly advocated taking the temperature hourly, or at longest every two hours, after the injection. He had seen many cases where it reached its maximum from the second to the fourth hour after injection, and had become normal again by the twelfth hour. The test was absolutely decisive if used under stringent conditions. He employed Koch's 1890 tuberculin, of uniform strength, gave large doses, 0.5 to 1 grm, and took the temperature hourly for twenty hours. The fever which might be induced in non tuberculous animals was not typical. If the beast had become accustomed to tuberculin by repeated injections, stronger doses must be employed. All his results had been confirmed by necropsies.

DR. SCHUTZ, Berlin, held that the microscopical diagnosis of tuberculosis was not nearly so easy in the lower animals as in man; caseation was specially ill-marked in the pig and sheep. In the mammæ of cows the appearances were much more those of chronic mastitis than of ordinary tubercle. Moreover, in the milk itself other bacilli might be found which were microscopically indistinguishable from those of tuberculosis, which could only be certainly detected by inoculation into guinea-pigs. By experiments on artificially infected animals it was found that the susceptibility to tuberculin had a latent period, then rose suddenly and fell gradually.

DR. BANG, Copenhagen, agreed with Professor Nocard as to the importance of clinical examination of the mammæ and uterus. He objected to Dr. Schutz's criticisms of the microscopic diagnosis and stated that 99 per cent. of cows whose milk he had pronounced tuberculous after microscopic examination were found to have tuberculosis of the udder.

PROFESSOR MCFADYEAN, London, held that bacteriology was more essential in diagnosis than Professor Dewar had made out, as the diagnosis had to be made earlier than in man. In 80 per cent. of these early cases the tuberculin test was alone conclusive; harpooning was not readily permitted in England. He thought Dr. Malm's views as to the infallibility of the tuberculin test were a little in excess of the truth. Experiments both in England and France had shown that artificially tuberculous cows might show no reaction for as long as fifty days after infection. He considered the test at an early stage better than all the others together, but not infallible.

DR. HUYTRA, Hungary, had found only 2 per cent. of failures with the tuberculin test. He regarded a rise to 40 C. as a positive indication of infection.

PROF. OWEN WILLIAMS commented on the absence of reference to such sources of infection as the horse, dog, cat and bird. He held that the failure of inflamed mammæ to subsequent atrophy was strong presumptive evidence of the tuberculous nature of the disease. He had found the tuberculin test almost infallible.

PROFESSOR EDGAR held that our clinical powers of diagnosis had, if anything, deteriorated during the past twenty years. He strongly supported the tuberculin test when sources of error, for example, its application by unscientific people, were eliminated.

PROFESSOR MCEACHRAN, Montreal, stated that the errors in the use of tuberculin in Canada and the United States amounted to less than 2 per cent. Udder infection was rarer, but uterine more common, than generally believed.

MR. VILLAR confirmed the value of tuberculin in early cases, but stated that animals which had mastitis and reacted to injections were yet subsequently shown to be non-tuberculous.

MR. LAITHWOOD, Cheshire, had found that 96 per cent. of the cases in which tuberculin gave a positive result were confirmed by slaughter, and that 80 per cent. of the infected animals showed a maximum temperature from the twelfth to the fourteenth hour after injection. He found that many cases recovered after six months' isolation and open-air treatment. He had come to the conclusion that manual examination of udders was insufficient to exclude tuberculosis from the milk supply.

MR LLOYD, Manchester, stated that about one-third of indurated or hypertrophied udders were tuberculous.

Tuberculosis and the Milk Supply.

MR. J. A. W. DOLLAR, M.R.C.V.S., continued the discussion in the Veterinary Section on July 24, by first considering the relations between bovine and human tuberculosis. He thought that Professor Koch had brought his evidence forward at an inopportune time. Mr. Dollar, while admitting Professor Koch's logic, quoted what he regarded as almost experimental facts illustrating the transmission of tuberculosis from lower animals to man.. He considered that for the transmission of bovine tuberculosis to man a certain concentration of the bacilli by the digestive tract was necessary, and gave this as one of the reasons for the rarity of primary tuberculosis of the bowel in children and in men. He proceeded to review the statistics of bovine tuberculosis in Europe, comparing the proportion of tuberculous cows as shown respectively by the slaughterhouse and tuberculin tests; his facts as regards tuberculosis of the udder were in general agreement with those of previous observers. He warned his hearers against the fallacy of believing that goats were insusceptible to tuberculosis, upon which view goat's milk was commonly given to children. Nocard has shown that tuberculous mastitis could be induced in goats by injecting tuberculous milk beneath the stripped udder. Tuberculosis was also found to attack asses and sheep. Mr. Dollar next discussed the methods of preventing the spread of tuberculosis by milk, comparing the advantages and drawbacks of pasteurization and sterilization, and giving examples of commercial establishments supplying pasteurized milk. He cited examples showing the possibility of eradicating tuberculosis from herds of milch cows, and the success which had attended commercial establishments supplying milk from guaranteed tubercle-free herds. He commended Professor Bang's system of stamping out tuberculosis, and quoted the experiments made on this system in Belgium, Canada, and the United States of America.

PROF. MCLAUGHLIN YOUNG thought that the expressions of opinion hitherto given had erred somewhat on the side of overcaution, and that the Congress should give an authoritative opinion on the points at issue. He stated that the authorities were much laxer in milk than in meat inspection. He pointed out that the tuberculin test was a good one, but abused by unscrupulous persons who fortified diseased animals against it by previous injections. He held that powers of examination of all cows by the test should be granted.

DR. STOCKMAN stated that he did not believe that milk could be infected in the absence of tuberculosis of the udder. He held that there should be compulsory notification of udder tuberculosis and slaughter of the beasts. He considered that

harpooning was not superior to bacteriologic examination of the milk, and that inoculation experiments were impracticable. The presence of inflammatory cells in the milk should render a cow suspect.

PROF. OWEN WILLIAMS suggested that tuberculin should be sold as a poison in order to avoid its fraudulent use, and that funds for compensation of owners might be raised by small duty on all sales.

MR. MONTEFIORE LEVI, Belgium, stated that there had been great difficulty in Belgium owing to the use of imperfect tuberculin. He recommended the use of milk from good strains of hornless goats for use in sanatoria.

MR. MARTIN recommended the bi-monthly inspection of cows, the isolation of all having udder disease, and the prevention of the sale of tuberculin to unqualified persons to fortify their cattle against the test.

PROFESSOR AXE, representing the British Dairy Farmers' Association, stated that the conviction of the Association that bovine tuberculosis was transmissible to man was much weakened by Professor Koch's statement. He himself had found that the proportion of animals in a herd giving the tuberculin reaction varied directly as the amount of confinement within doors.

PROFESSOR BANG said that since 1898 all cows in Denmark with udder tuberculosis had been killed. Milk from all suspected cows was sent to his laboratory, and the diagnosis of tuberculosis there made was confirmed by necropsy in 99 per cent. He had found that in only 14 per cent. of tuberculous cows with clinically healthy udders did the milk cause tuberculosis when injected into guinea-pigs. Ostertag had shown that the milk of cows which were tuberculous only to the tuberculin test was non-infective. Professor Bang admitted the value of the outdoor treatment, but held that infection was all-important; a sound herd might always be kept within doors without becoming tuberculous.

DR. MCWEENEY was so satisfied with the tuberculin test that he regarded a necropsy as faulty which failed to reveal tubercular lesions in an animal which has responded to it. He had, however, seen two cases which proved to be tuberculous after having failed to respond.

MR. DOLLAR, closing, said that in France peasants who had herded with their cattle had been found very liable to tuberculosis, and that in Queensland cattle tuberculosis was very rife, in spite of the herds being constantly in the open air. He thought the Section was in general agreement upon four points, namely: 1. The necessity for periodical inspection of herds. 2. The advisability of slaughtering cows with tuberculosis of the udders. 3. The advisability of compulsory legislation for the whole country. 4. The unwisdom of allowing Professor Koch's dictum to cause a relaxation in present efforts to keep the milk supply pure.

Tubercle Bacilli in Cow's Milk as a Source of Tuberculosis in Man.

The general meeting of the third day was taken up with the consideration of tuberculosis in animals. Earl Spencer presided over the large gathering, and spoke of the distinguished position of the essayist of the afternoon, one of the vice-presidents of the Section on Tuberculosis in Animals. He is principal and professor of comparative pathology and bacteriology of the Royal Veterinary College, and editor of the *Journal of Comparative Pathology*.

PROF. JOHN MCFADYEAN, M.B., C.M., B.Sc. (Edin.), F.R.S.E., M.R.C.V.S., then delivered his address on the above subject. He said that "to-day" the position of anyone who undertook to discuss the intercommunicability of human and bovine tuberculosis was very different from what it would have been a week ago, for in the interval the greatest living authority on tuberculosis—the world-renowned discoverer of the tubercle bacillus, and the man to whom we were mainly indebted for our knowledge of the cause of tuberculosis—had declared his conviction that human and bovine tuberculosis were practically two distinct diseases. He did not know how far the reasons assigned by Dr. Koch for the opinion which he now held on this question might have commended themselves to the members of this Congress, and he was overwhelmed at finding himself in a position which compelled him to offer some criticism on the pronouncement of one the latchet of whose shoes he was not worthy to unloose. That bovine and human tuberculosis were identical diseases was generally supposed to have been finally determined by Dr. Koch himself when he discovered that the human and the bovine lesions contained bacilli that were identical in morphological, tinctorial, and cultural characters, and showed that the artificial cultures from both sources produced indistinguishable effects when they were employed to infect a variety of animals.

What were the grounds upon which they were asked to discard convictions that appeared to rest on such a solid basis? He should endeavor to state them briefly, as he understood Dr. Koch's train of reasoning: "1, The bacilli found in cases of bovine tuberculosis are much more virulent for cattle and other domestic quadrupeds than the bacilli found in cases of human tuberculosis. 2. This difference is so marked and so constant that it may be relied upon as a means of distinguishing the bacilli of bovine tuberculosis from those of the human disease, even assuming that the former may occasionally be found as a cause of disease in man. 3. If bovine bacilli are capable of causing disease in man, there are abundant opportunities for the transference of the bacilli from the one species to the other, and cases of primary intestinal tuberculosis from the consumption of tuberculous milk ought to be of common occurrence. But postmortem examination of human beings proves that cases of primary intestinal tuberculosis are extremely rare in man, and, therefore, it must be concluded that the human subject is immune against infection with the bovine bacilli, or is so slightly susceptible that it is not necessary to take any steps to counteract the risk of infection in this way." He ventured to submit that at least one of the premises contained in that argument was not well founded, that the others had little or no bearing on the question, and that there still remained reasonable grounds for regarding tuberculous cows' milk as distinctly dangerous to human beings. The evidence in favor of the view that the ingestion of tuberculous milk was one of the causes of human tuberculosis included a number of recorded cases in which the relationship of cause and effect appeared to be obvious. In the Hospital for Sick Children in Great Ormonde Street, London, George F. Still found that in 29 per cent. of the cases of tuberculosis, primary infection appeared to have taken place through the intestine. In the Royal Hospital for Sick Children at Edinburgh, Dr. Theodore Shennan found 28 per cent. The late Sir Richard Thorne was convinced that tuberculous milk was the main cause of tabes mesenterica in children. His reason was that the statistics for the last 50 years show a marked decline in the death-rate from phthisis—the form of tuberculosis resulting from inhalation, while only a slight decline took place in the death-rate at all ages from that form of tuberculosis which is ascribable to alimentary infection and in children under one year there was a notable increase. The number of persons who became infected by milk could not be ascertained, but some estimate might be formed from certain facts. About 30 per cent. of all the milch cows were tuberculous in some degree. But the milk did not appear to be dangerous until the udder became diseased, and only about 2 per cent. of milch cows were so affected. Milk from tuberculous udder contained bacilli in enormous numbers, and the disease was not attended by any pain or tenderness for a considerable time; so that the gravity of the condition was not realized. To prevent this danger Professor McFaydean advocated a periodical examination of cows by competent inspectors. Less effective, but more easily carried-out measures, were a compulsory notification of udder disease and of any symptoms of tuberculosis in milch cows, and the interdiction of sale of milk from animals suffering from this disease.

A great deal of the milk in the market contained a considerable quantity of dust and dirt, most of which came from the cow's udder and the hands of the milker, and part from the dust of the air of the cowshed. When thirty per cent. of the cows in a byre were tuberculous, the dirt in that building, and the atmosphere in it, were almost certain to contain tuber-

cle bacilli, and some of these were very likely to find their way into the milk. The more dirt milk contained the greater was the chance that tubercle bacilli from that source might be present. The present state of the law in Great Britain, or rather the almost entire absence of any law, dealing with tuberculous udder disease in cows was a scandal and a reproach to civilization. It scarcely sounded credible, but it was a fact that the owner of a cow in the most advanced state of tuberculosis, and exhibiting the most manifest signs of udder disease, might sell that cow's milk for human food as long as the sale had not been specially interdicted on the certificate of a veterinary surgeon, and no penalty attached to this crime of deliberately or carelessly placing on the market a food material charged with the germs of a dangerous disease. In the interests of public health, the sale of milk from tuberculous udders, and from cows that were obviously tuberculous in any part of the body must be stopped, and it must be declared illegal to keep such animals alive. In conclusion, he would venture to express the earnest hope that the Congress would not endorse the view that it was inadvisable to take any measures to prevent the transmission of tuberculosis from the lower animals to human beings. To justify the introduction of measures to that end it was not necessary to contend that this was a common method of infection, or that the danger arising from milk could for a moment be compared with that present in human sputum. The inhalation of tubercle bacilli expelled from the bodies of human patients was, doubtless, the great cause of human tuberculosis, and every practicable means of preventing infection in that way ought to be employed; but, at the same time, they ought not to concede to the milkmen the right to sell tubercle bacilli, even if they were assured that—like Dr. Koch's experimental pigs—they had nothing to fear beyond the development of "little nodules here and there in the lymphatic glands" of our necks and "a few gray tubercles" in our lungs.

SIR J. CRICHTON BROWNE, who had taken the chair, said the attention with which they had followed the address showed how fascinating Professor McFadyean had made a rather grim and unesthetical subject. The address confirmed the view that further investigation was necessary before they could accept Dr. Koch's conclusions, and he urged the need for a Royal Commission. He hoped there would be no unnecessary delay in the investigations at home. In the meantime, he thought we should run no risks in Great Britain. He moved a vote of thanks to Professor McFadyean.

PROFESSOR NOCARD, France, expressed his complete accord with Professor McFadyean's views. In France they realized that all forms of tuberculosis were dangerous and to be guarded against. The French Government carried out exactly the suggestions with regard to the inspection of dairies suggested by Professor McFadyean. He seconded the motion.

The Sanatorium Treatment of Consumption.

PROF. CLIFFORD ALLBUTT read a paper on this subject. He said that there was much supineness as to the early diagnosis of phthisis. Whenever a man complained of being overwrought, of off color, consumption should be suspected, cough or no cough. Hemoptysis should never be set down to the rupture of a blood vessel in the throat. The absence of bacilli from the sputum should not be regarded as an indication of safety. Pleurisy, however old, should never be forgotten. If there was no fever, a high pulse with low arterial pressure should cause watchfulness, especially if there was a loss of weight, and a tendency to sweat. The chest should be percussed with the patient seated on a wooden chair without a cushion. The larynx should be examined, if only for detecting change of color. There was no specific climate for consumption, nor even a best climate. The importance of sunlight had been exaggerated. At Davos, patients did as well in the darker, as in the brighter winters. The most general terms in which the question of climate could be expressed were these: The coldest climate which the patient can tolerate, if the air is dry, clear, and still, is the best. It calls for the most food, and stimulates the appetite, but much depended upon age. Air which would stimulate a patient of 35, might cause one of 55 to shrivel up. In the sanatorium treatment of consumption three degrees of recovery might be distinguished: 1, rest; 2, obsolescence; 3, *restitutio ad integrum*. The last was too curious to be considered. If the term of residence sufficient to obtain obsolescence were required sanatorium treatment would be nipped in the bud; for to obtain obsolescence even in the first stage, two winters and one summer at least were necessary, and in many cases three winters and two summers. But how many even of the easier classes could do this? However, a distinction should be made between a pathologic and an anatomic cure. To obtain the latter, a period of three to six months' residence was required. Then the patient could return to a clean home and a wholesome occupation. Professor Allbutt protested against the treatment of phthisis as an abstraction, and not of the individual; and of thrusting too much food on the patient. In one case that he observed a patient was stuffed on the most modern system; was nauseated and losing ground, much to the disappointment of his medical attendant. On examination, Professor Allbutt found that his stomach was dilated with food and enlarged, like a haggis. Milk, he thought, was given too profusely.

DR. PHILLIP, of Edinburgh, said that hyperaeration was a *sine qua non*. The freest access of air should be allowed day and night, provided the patient were sufficiently clad. He never troubled as to what was the temperature of the air to which he exposed patients. Rest should be enforced if the temperature was over 100.5 or the pulse above 90. As the patient improved exercise should be taken, which should be gauged by the pulse and temperature. The regular use of the cold bath was quite possible and advantageous. No special climate was necessary for the erection of a sanatorium. One might be erected anywhere, provided the place was not exposed to any noxious influence. He had never seen any harm from the open-air treatment. Even in dying patients the distressing symptoms were relieved, and euthanasia promoted. The proportion of cures obtained by him, in his sanatorium near Edinburgh, the climate of which had been described as one of the cruelest in the world, was 50 to 60 per cent., and with admission of the cases in an earlier state, he had no doubt that a still higher proportion could be obtained.

Mortality from Phthisis in England and Wales During the Last Forty Years.

DR. JOHN TATHAM, of the general register office, read this paper. He said that the mortality from phthisis in the four years 1896 to 1899 was in males 1521 per million living, and 1141 in females. The liability to phthisis began somewhere between the 15th and 20th year. In males the death-rate at the age group 15 to 20 was 908 per million, and attained its maximum at 45 to 55, when it reached 3173. Among females of 15 to 20 it was 1165, and attained its maximum, 2096, at 35 to 45. Comparing the period 1896-99 with 1851-60, the phthisis mortality in males had been reduced from 2579 to 1521 per million: in females from 2774 to 1141. The effect of employments is remarkable. Thus between the same adult ages the tin miners had 508 deaths from phthisis, as against 69 among the coal miners. Dr. Körösy, of Buda-Pesth, reported that in Hungary printers suffer most from consumption, and after them come shoemakers, dyers, millers, joiners, masons, tailors, bakers, and so on—showing how largely trade influences the mortality.

Heredity in Tuberculosis.

DR. EDWARD SQUIRE, physician to the North London Consumption Hospital, said that in 1894 in a paper presented to the Royal Medical and Chirurgical Society, he gave reasons for considering that the influence of heredity was not so great as was believed. Although about 33 per cent. of consumptives gave a family history of tuberculosis, there were reasons for attributing the disease to occupation in the greater number of the cases, and he placed the influence of heredity at 9 per cent. Recently, on looking through a number of life insurance claims, he obtained some figures bearing on the subject. Of 469 claims in which the required information was available, he found 78 deaths from tuberculosis, of which only 7 had a history of consumption in the family. Twenty-two other cases of death

from causes other than tuberculosis, gave phthisical histories. Thus, in 440 cases, free from consumptive taint, 71, or 16 per cent. died of tuberculosis, and in 29 cases with consumptive family history, 7 or 24 per cent. died of tuberculosis. Therefore the excess in percentage of deaths from tuberculosis, in cases with a consumptive family history over deaths in those without it was 8 per cent.—a result curiously near the original figure at which he had arrived.

Influence of Raw Meat on the Evolution of Experimental Tuberculosis.

PROFESSOR CHANTEMESSE read this paper, which he had prepared in conjunction with Professor Cornil. Richet and Hericourt published experiments showing the beneficial effects of raw meat in tuberculosis, in dogs; but their observations were open to the objection that the quantity of meat given was not measured, and that the good effect obtained might have been merely due to the fact that the dogs preferred ate larger quantities of raw meat than they would have eaten of boiled. To exclude this influence the following experiments were made. Six couples of dogs, each of the same weight and appearance, were taken. One of each couple was fed with boiled meat to satiety; the other was given an equivalent quantity of raw meat. Both were inoculated in a vein of the leg with tuberculosis. The dogs fed with boiled meat died at intervals varying from 3 weeks to 4 months. The necropsies showed general tuberculosis, more or less voluminous caseous granulations, and advanced fatty degeneration of the liver. Those fed on raw meat were killed at the same time. They were all plump: they showed less numerous tubercles than did the others, and less voluminous and less caseous granulations. In another experiment a dog was inoculated with tuberculosis and given 750 grams daily of raw meat. He preserved his strength, weight, and healthy appearance. He was killed at the end of 12 months. The necropsies showed a small number of tubercles in the viscera and tubercular interstitial nephritis. He was on the way to recovery. Two monkeys were inoculated with tuberculosis. One was fed on the ordinary diet, and died at the end of 23 days of general tuberculosis: the other was fed on raw meat from 15 days before the inoculation, and lived for 49 days. Professor Chantemesse and Cornil therefore conclude that the utility of a raw meat diet in tuberculosis, consisted not in over-feeding, but in the anti-tuberculous quality of the diet.

The Treatment of Tubercular Laryngitis.

DR. ST. CLAIR THOMSON said that the statistics of the Brompton Consumption Hospital showed that the larynx was affected in over 50 per cent. of fatal cases of pulmonary tuberculosis. As 70,000 persons died annually from this disease, at least 35,000 of them would require treatment to mitigate their sufferings. Few of the recent text-books on laryngology contained any reference to the treatment of laryngeal tuberculosis by modern hygienic treatment. He deprecated the various local methods which from time to time had been vaunted. Their very number was eloquent of their inefficiency. Applications of lactic acid in the last ten years had obtained such vogue that they were used even in the most unsuitable cases, injuring the patient's health. Freudenthal, who used it freely, stated that "it ought to be dispensed with as antiquated and barbarous torture of the patients." (Jour. A. M. A., March 16, 1901.) We must look elsewhere than to surgical measures for progress in the treatment. This progress was ready to hand in the making of an earlier diagnosis. Then under this condition the sanatorium treatment with good food could be carried out, and rest of the voice should be insisted on. Catarrhal, or obstructive affections of the nose and throat, and intercurrent conditions of the larynx should receive suitable treatment.

Reception by the King.

The King received the foreign delegates to the Congress, who were presented by the Earl of Derby. His Majesty said: "Gentlemen, let me express to you the great pleasure and satisfaction it has given me to ask you to come here to-day. It has been a source of great concern to me that, owing to circumstances over which I had no control, I was prevented from presiding at the opening of your important Congress, and attending its meetings; but I can assure you that, though not present, I take the deepest interest in its proceedings, and that I follow, through the medium of the daily press, with much interest the papers and discussions. There is no more terrible disease than consumption, and I only hope and trust that you may be the means of minimizing its evil effects, and thereby receive the gratitude of the world."

Final Meeting: Resolutions.

The final meeting of the Congress was held on July 26, with the Earl of Derby in the chair. The following resolutions were unanimously adopted:

1. Tuberculous sputum is the main agent for the conveyance of the virus of tuberculosis from man to man. Indiscriminate spitting should, therefore, be suppressed.
2. All hospitals and dispensaries should present every out-patient with a leaflet on the prevention of consumption, and insist on the use of a pocket spittoon.
3. That notification of tuberculosis should be established, when possible. If compulsory notification is impracticable, voluntary should be encouraged.
4. The provision of sanatoria is an indispensable part of measures for the diminution of tuberculosis.
5. Medical officers of health should use all their powers and relax no effort to prevent the spread of tuberculosis by milk and meat.
6. That in view of the doubts thrown on the identity of human and bovine tuberculosis, the government be requested to institute an inquiry into the subject.
7. That the educational efforts of the great national societies for the prevention of tuberculosis are deserving of support.
8. That a permanent international committee be appointed to report on the measures for the prevention of tuberculosis in different countries, to publish a popular statement of these measures and to keep and publish a record of scientific research in relation to the disease.
9. Overcrowding, defective ventilation and the damp and insanitary dwellings of the working classes diminish the chances of curing consumption and are predisposing causes of the disease.
10. The attention of governments and charitable persons be called to the necessity for establishing anti-tuberculous dispensaries.

The following subject was proposed for the consideration of the next Congress: "The constitutional conditions of the individual, which predispose to tuberculosis, and the means by which they may be combated."

A pleasant feature of the closing procedure was the heartiness with which Professor Brouardel and Dr. Gerhardt, as spokesmen of the foreign delegates, joined in the vote of thanks to the organizing committee, and especially to the chairman, Lord Derby. The French professor, in the name of the President of the Republic, invited those present to the Congress two years hence, in Paris. Lord Derby, replying in French, accepted the invitation, and assured M. Brouardel and his colleagues of the heartiest co-operation of the "Section Britannique" when the assembly gathered in the capital of the Republic. The last meeting was well attended, a large portion of the 2500 members of the Congress being present, and all expressed themselves as realizing that no expense had been spared to make the gathering one worthy of the high object for which it was called together. Its members have gone to their homes realizing that a new gospel of hope has been proclaimed.

ANTISEPTIC FUNCTION OF THE PANCREAS.—Zaremba affirms the existence of an antitoxin for diphtheria in the pancreas, and states that it is found in quantities even in the newly born. Experimental diphtheria intoxication was neutralized in every case with the extract of the pancreas from newborn infants and children, except in the case of death from chronic affections of the gastro-intestinal canal. The antitoxic function of the pancreas is therefore destroyed or checked by certain chronic affections of the intestinal infections. The antitoxin in the pancreas rapidly vanishes after death, and consequently, this research required an extract made from the pancreas two hours after death.—*Sem. Med.* from *Arch. f. Verdau. Kr.* vi, 4.

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A NOVEL THEORY OF CANCER.

An Australian physician, J. H. Webb,[1] offers a theory of cancer that will be novel to at least a majority of the profession. He rejects the parasitic theory that has lately been so prominently to the fore, holding that thus far no sufficient evidence has been adduced to support it. Nor does he look to the microscope for the solution of the question of the origin of malignancy; "all the microscopes that were screwed up and down could never have revealed to us the connection between myxedema and the thyroid gland—one of the most important discoveries made in recent years." Supposing, he says, myxedema had only been recently recognized and our knowledge of the function of the thyroid still withheld, what a search there would have been after its germs. Taking what clues we have to the disease, he sees little to favor the irritation theory of the excitation of the irregular cell proliferation and much more to suggest a secretory derangement. All secretions, he postulates, have their uses and the plus or minus of any secretion beyond certain limits means disease. All reproduction requires control or, given nutrition, it would be indefinite. There must, therefore, be something that limits the proliferation of the cell, and on account of its variability, he thinks, it can only be a secretion, which may be disordered in nature or in its control. If inhibition is lost and food supply continues, proliferation becomes indefinite; hence, there must be something in the organism that regulates the multiplication of the cell.

Cancer is the uncontrolled proliferation of one of the two ultimate tissue element—cells and fibers. If one of these can lose its control it stands to reason, he says, that the other can do the same, and we find this in myxedema, which is uncontrolled proliferation of the fiber. We know that myxedema is due to defect of the thyroid secretion and by analogy we should expect to find somewhere in the economy a similar body controlling cell proliferation, though the conditions are not exactly the same, since the cell, like a flask, can contain its own control. Reasoning thus, Webb turns to the liver secretion, the coincidence of gallstones and malignancy and our ignorance of the real function of the liver secretion suggesting the analogy. Mayo Robson and others have noticed this coincidence and some have written of cholesterin irritation in the causation of cancer. Cholesterin, which Webb at first believed to be the controlling agent of cell growth, is only isolated in its crystalline state, that is, when it has become a morbid product. In the organism it is in solution and kept thus by its own solvent soap. Under this impression, that cholesterin was the controlling agent and had become deficient, he tried injecting it hypodermically in cancer cases in solution with soap, at the same time administering thyroid. Later he has apparently used soap solution alone with the thyroid, and he reports some striking results as well as frankly acknowledging some failures. He reports two cases of epithelioma as cured and two more strikingly relieved; also one case of scirrhus of the breast and one of rodent ulcer cured. The cell element first disappears under the treatment, leaving the fibrous tissue behind, to be absorbed later.

It is not the lack of cholesterin that causes cancer, according to this theory; its crystals can be isolated from cancer discharges; it is the want of the saponifying agent in Webb's opinion, and he thinks it is one of the functions of the liver to produce this. Both the ultimate elements, fiber and cell, enter into cancer, hence the use of the thyroid. The cell, it may be from an injury, "sheds its cholesterin and the succeeding offsprings acquire the habit," and this is where Adami's "habit of growth" hypothesis comes into play.

Whatever may be thought of this theory of the pathology of cancer, if Webb's diagnoses can be relied upon, and their apparent lack of pathologic verification suggests a possible doubt, the results reported by him are worthy of consideration in a disease that is so generally resistant to our best efforts. Any therapeutic suggestion that is not itself deadly is at least worth investigation in such an almost universally hopeless disease. The theory is an ingenious one and seems to us novel. The idea of glandular influence on cancer production is, it is true, not altogether new; it has been suggested by Beatson, but in an entirely different way. The parallelism here drawn between myxedema and cancer and the idea of a lack of cell-controlling secretion analogous to thyroid secretion as the chief factor has not, according to our observation, so far at least, been thus emphasized in the theories of the origin of malignant disease.

In the current issue of the *New York Medical Journal*, Dr. Robert Abbe reports two cases of oöphorectomy performed under the suggestion of Beatson's theory, with striking results in the cure of mammary cancer, and mentions several others in which temporary arrest seemed to follow the operation, to a certain extent at least. These and other cases reported, together with the remarkable therapeutic results, open up, as Abbe says, a rather new field of thought upon the subject and justify further experiment and observation.

The secretory theory of cancer in one form or another may probably have a future.

1. Intercolonial Medical Journal of Australasia, June 20, p. 260.

IONS IN PHYSIOLOGIC AND OTHER PROCESSES.

The theory of electrolytic dissociation, discussed briefly in a preceding issue, is being applied with good results to various questions in general physiology. Among the first experiments in this field are those of Kahlenberg and True, who succeeded in demonstrating conclusively that the toxic action upon the bean *Lupinus albus* L. of dilute solutions of various salts and acids is due to the ions and not to undissociated molecules. By experimenting with various solutions allowed to act on germinated seeds it soon became clear that H -ions and OH -ions are the carriers of the toxic properties. From the work of these men it was shown that the properties of solutions of electrolytes are due to the ions as well as to undissociated molecules; and in very dilute solutions the action may be dependent wholly on ions.

Loeb has demonstrated that when the gastrocnemius muscle of frog is placed in a 0.7 per cent. NaCl solution it neither loses nor takes up water, as this solution has the same osmotic pressure as the tissue fluids. If, however, small amounts of inorganic acids and alkalies are added to the salt solution the muscle absorbs water and increases in weight, due to the H -ions and HO -ions causing increase in the osmotic pressure of the muscle by inducing hydrolytic splittings in the latter and a corresponding increase in the number of its molecules. When the muscle remains in salt solution for some time molecular changes also occur in its interior associated with the production of acid reaction, secondary molecular changes, and absorption of water. Now, muscular activity is accompanied with the production of acid and the absorption of water, and Loeb is inclined to attribute to the latter factor a large share in the cause of labor hypertrophy. He also emphasizes the fact that vegetable and animal organisms probably are protected against lack of water by adaptation through variation of osmotic pressure to prevailing conditions. Loeb has also shown that the rhythmic contractions of certain muscles are dependent on the presence of certain ions in the surrounding solutions. Different ions have different actions in this respect. Ca -ions and K -ions retard or prevent contraction, whereas Na -ions and a number of anions induce contractions in the presence of a certain number of Ca -ions. It seems as if contractility and loss of contractility depend on the formation of certain definite proteid compounds with Ca -ions and N -ions in different proportions, thus indicating the fundamental importance of chemical composition of living matter in its relations to function. It has furthermore been proved that rhythmic contractions are wholly independent of the nerves connected with the muscles; and this has led to valuable studies of the automatism of the heart with the general result that there is probably no real basis for the prevalent doctrine in regard to the so-called cardiac neuroses.

Richards has demonstrated that the sour taste of acids is dependent on the H -ions in the solutions; and Kahlenberg formulates the general law that the taste of electrolytic solutions is due wholly to the ions in them. Among other results of the study of the rôle of ions in electrolytic solutions may be mentioned those of Kahlenberg and True, and of Paul and Krönig, showing that the bactericidal action of mercurial solutions is dependent on the number of Hg -ions in the fluids, and that the action of various antiseptic solutions are to a large extent ionic in nature.

Enough has been adduced to show the wide influence the theory of ionization is to have in various fields of medicine. Wherever physiologic, pathologic and pharmacologic problems involve the consideration of solutions of inorganic substances, the peculiar actions of the constituent ions of the latter must not be neglected. The study of a number of powerful medicines from this point of view will probably yield interesting results.

THE UNSOLVED PROBLEMS OF TUBERCULOSIS.

The echoes of the recent British Congress on Tuberculosis are likely to be heard for some time and the one pre-eminent question raised by Koch's address is not likely to be downed until some authoritative dictum based on conclusive research has been given out. It may be that as a profession we have not taken exactly a scientific position heretofore on this matter; we have accepted inconclusive evidence as final, and have been guided in our opinions more by the sense of expediency than by the careful weighing of facts. If this is true Professor Koch has done the profession a service by raising the issue definitely and clearly. The fact that the majority of authorities are against him is perhaps a fortunate one as it will insure a more thorough study on their part to find data to support the theory so rudely shaken by his authority.

The investigation, however, is not a simple one, not so much so indeed as Professor Koch would seem to believe. It is not a self-evident *a priori* fact that cultures of tubercular lesions in the human subject derived from tubercular meat or milk will still present the characteristics of bovine tuberculosis. If this could be definitely accepted as true the matter would be easy. But the fact is there will be objectors to this acceptance who will require demonstration that the organism does not become modified according to its environment, and with our present lack of knowledge of the biologic qualities of the tubercle bacillus in all its varieties there seems to be a very wide field for investigation and infinite puzzling possibilities. On the other hand, it does not follow that latent human tuberculosis or its almost ubiquitous tuberculous germs may not be aroused into malignant activity by the inoculation of animal tuberculous toxins, or that a possibility of transmission of bovine tuberculosis to man by inoculation proves that it is also transmissible by introduction into the unwounded digestive tract. As one of the foreign delegates is reported to have said in the Congress, the

inoculation of man from animals is a different thing from infection by way of the alimentary tract. There may, moreover, be differences in the development and virulence of the tubercle bacillus in different parts of the organism to still further complicate the question. There is still another factor with which to reckon, and that is the universal distribution of the germs of human tuberculosis which renders impure almost every possible experiment in this line. We can not well exclude the possibility of other sources of infection in any alleged case of transmission of animal tuberculosis to mankind.

It would seem that after all the study will be largely confined to the lines already followed by Koch, viz., clinical and postmortem observation. There are, however, many suggestive side-lines, and there is a wide range of possibly useful facts in the enlargement of our at present imperfect knowledge of the natural history of the microbe and its closely allied forms. The study of human resistance and immunity is also promising; it may come finally to the problem of just how much microbic invasion the average organism can stand under different conditions. We may find the danger of bovine tubercle a minimal one, and yet have to decide how far we are justified in neglecting it, and whether it can be differentiated in any case from that due to numerous other sources of infection that are ever about us. In the meantime we will do wisely to keep on the safe side, avoiding, however, the tendencies to exaggeration and unwarrantedly positive statements that have existed in the rather recent past. If Koch has excited a healthy scientific skepticism to stimulate research and replace the self-satisfied assurance of positive knowledge on a subject in regard to which there is yet so much unsettled, his utterances will have done an infinite amount of good.

THE MEDICAL PROFESSION ORGANIZING.

Whatever may be the reason the fact is the medical profession everywhere has become aroused to the necessity of organizing for something more than purely scientific purposes. This is true not only in the United States, but in the Old World also.

Last week[1] we gave an account of the Deutscher Aerztevereinsbund, or the German Practitioners' Association, which showed that this association during the past year had increased its membership in a remarkable manner. The most important fact shown, however, is that the Bund has taken up in an active, business-like manner the problems that are affecting the profession in Germany, problems that have their counterpart with us. It decided to establish a central office, or headquarters, in Berlin, and to place one of its members in charge; and it appropriated a good sum to carry out the objects the Bund has in view. Among these are to promote the ethical and material interests of the profession; to publish an organ; to supply information on questions affecting the profession and its relation to the authorities, to the legislature, and to the professional and lay press, etc.; to assist in the organization of new sub-societies, and to endeavor to have the sums paid physicians by the sick-benefit societies increased; to combat quackery in every possible way, and otherwise to look after the material interests of the profession. This action was stimulated no doubt by the movement taken some time ago by those who were dissatisfied with the lukewarm methods of the Aerztevereinsbund, and who organized another society for the express purpose of carrying on the "battle of the clubs," and of solving the problems affecting the welfare of the profession. It is felt that this action on the part of the Bund will make it unnecessary to keep up the new organization that is having the effect of dividing rather than uniting the profession, a result which naturally follows a multiplicity of societies not working in a co-operative way.

The profession in Great Britain has been feeling the necessity of a more compact organization for years, and this culminated last week in a report to the British Medical Association by its committee on reorganization which calls for radical changes. From our foreign exchanges we learn of the same earnest effort in nearly every country to unite the profession for mutual good, for political influence, as well as for scientific purposes.

Coming back home we find that at least three-fourths of our state societies have appointed committees on organization, and that these committees are actively considering the problem of how to bring every physician in the state into the state society or one of its branches. The important changes made in its organic law by the American Medical Association at its last session, is only one of the events which is leading up to that much to be desired condition—a united profession in the United States.

1. JOUR. A. M. A., August 3, p. 338.

PRO BONO PUBLICO.

Professor Osler got off a good thing the other day at the British Congress on Tuberculosis. During the opening exercises much was said of a nature flattering to the profession. Dr. Osler remarked that a large delegation had come over from the United States, but that it had not come like some of the "trusts" of which we have heard so much of late, and yet they represented a magnificent "trust." But while the motto of the ordinary trust was "damn the public," their motto was *pro bono publico.*

PROGNOSTIC SIGNIFICANCE OF OPTIC ATROPHY IN TABES DORSALIS.

It is a well-recognized clinical fact that the development of optic atrophy in the course of locomotor ataxia is generally attended with an arrest of the disease; so that this occurrence is considered of relatively favorable prognostic significance. No satisfactory explanation has hitherto been given for this strange coincidence,

but it is suggested by Dr. E. F. Cyriax,[1] that it may be found in the progressively increasing reliance that the tabetic patient, in consequence of his failing vision, is compelled to place for all of his movements upon his muscular sense, ordinary sensibility, sense of localization and co-ordination; and in re-educating these and in trying to restore the impairments he is actively and constantly engaged. The same reason is aimed at therapeutically by co-ordinate gymnastic and regulated exercises.

SUCH IS FAME.

According to the newspaper reports, the president of the New York City Department of Health first heard of Professor Koch and possibly also of the tubercle bacillus when a reporter called upon him to interview him on the sensation of the day. "Who is this man Koch?" was the official's inquiry, and when informed, he said: "Well, I don't know anything about him," and then turned to weightier matters. It is probable, as the newspaper says, that he does not think Professor Koch is half as great a man as he is. With some New York City officeholders the vision is limited to the Tammany jurisdiction and nothing outside of that is worth knowing. The official in this case, however, is, as many of us can testify, not a bad type of a too large class of individuals who get into places in our large cities through political machination and pull. It is a public disgrace when they occupy positions such as the presidency of the Department of Health of New York City, which should be filled by qualified men, and have such an opportunity to show their ignorance.

DIPHTHERIA BACILLI IN THE THROATS OF HEALTHY CHILDREN.

Attention has repeatedly been called to the fact that diphtheria bacilli may persist for long periods of time in the throats of those who have had an attack of diphtheria, and also that they may be found in the throats of those apparently healthy who are compelled to associate more or less intimately with such patients. In addition to these possible sources of infection, Drs. R. T. Hewlett and H. M. Murray[2] call attention to another that is even more insidious and more dangerous, because not suspected, namely, the throats of children suffering from other diseases than diphtheria. It was found that of 385 children under the age of 14 years admitted during the year 1900 to the Royal Victoria Hospital for Children, in London, for operation or some illness other than diphtheria, bacilli of diphtheria were isolated on culture from the throat in 58, or 15 per cent.; and pseudo-diphtheria bacilli in 92, or 24 per cent. Among patients 2 years old and upward, the diphtheria bacilli were present in the throat in less than 13 per cent. and the pseudo-diphtheria bacilli in nearly 28 per cent., while among those under 2 years of age diphtheria bacilli were present in 21 per cent. and pseudo-diphtheria bacilli in 14.5 per cent. In only seven of the entire number of cases was there any clinical evidence in favor of diphtheria, and in three of these neither diphtheria bacilli nor pseudo-diphtheria bacilli were found on the first examination. These observations show the importance of keeping the buccal cavity clean in children, and they may also serve to explain the mode of infection in not a few cases of obscure origin.

1. Lancet, June 29, 1901, p. 1861.
2. Brit. Med. Jour., June 15, 1901, p. 1474.

UNDILUTED MILK AS A FOOD FOR INFANTS.

Notwithstanding tireless research and wonderful ingenuity a perfect substitute to replace mother's milk as an article of food for the nourishment of infants yet remains to be discovered. This is greatly to be regretted, as the occasions are not rare on which mother's milk is not available or it is desirable or even necessary to have recourse to such a substitute. The fact is that there is yet not a little to learn concerning the assimilative processes in children, and knowledge, particularly of a practical character, concerning food is not so extensive or so precise as it might be. As K. Oppenheimer[1] points out in a recent communication, an article of food for the infant, to serve as a perfect substitute for mother's milk, should be as useful as the latter in the nourishment both of healthy children and of those suffering from gastro-intestinal catarrh. These requirements, however, are not met by any of the large number of artificial foods that have been devised. For the purpose of establishing the usefulness of undiluted cow's milk as judged by this standard, Oppenheimer made comparative observations in normal healthy children, in infants suffering from gastro-intestinal derangement and in atrophic children. In almost all of the 11 cases of the first group the bodily weight exhibited a steady and uniform increase; while of 36 cases of the second group only 6 failed to do well; and of 12 cases exhibiting marked atrophy 8 failed to do well. All of the foregoing cases were under observation for periods of more than four weeks. Of 33 additional cases under observation for a shorter period than four weeks 20 thrived and 13 did not.

CRIMINAL ADVERTISEMENTS.

A daily newspaper which is often sensible in its editorial comments on medical subjects, replies to the criticisms on certain of its advertisements made by a physician, that it assumes no responsibility for the reliability of their representations. If they interfere with the practice of physicians, as it assumes is the case, the latter can not be considered impartial censors. It therefore rejects the suggestion of scrutiny and revision of its advertising columns as made by its correspondent as inadmissible. A rapid inspection of the advertisements in the same issue reveals, among other scattering more or less objectionable drug "ads.," a special corner headed "Medical" containing four advertisements. One of these is an alleged gonorrhea cure, and ends with the significant sentence, "Rubber goods carried." The three others are all of the "ladies' safe remedy" class and if they do not openly profess an evil purpose are open to hardly any other construction. If the remedies are harmless and will not accomplish the results covertly claimed for them, then they are frauds and humbugs

1. Archiv f. Kinderheilkunde, 31 B., v u. vi, H., p. 321.

of the most villainous kind. On the other hand, if they are efficacious in the manner intended, then their sale and use is criminal and the newspaper that admits such advertisements is a participant in the crime. The editor can take which ever horn of the dilemma he chooses; in advertising such remedies he is either selling his space to humbug people or is allowing the space to be used for criminal purposes. He can not plead ignorance. When certain pills are advertised as "monthly regulator; safe and sure; never fails;" and when the advertiser says, "send for woman's safeguard," there is no doubt as to what is meant. The editorial apology is pitifully weak, not to call it anything worse. "Money talks" altogether too much with the advertising department of the daily press, and morality and even common decency must take a second place.

Medical News.

CALIFORNIA.

Sanatorium Burned.—The Sanatorium at Byron Springs was destroyed by fire, July 25. The loss was total.

State Board of Medical Examiners.—The following members of the Medical Society of California comprise the regular board of examiners: Drs. F. Dudley Tait, San Francisco; David Powell, Marysville; Daniel E. Osborne, St. Helena; Cephas L. Bard, Ventura, and Charles C. Wadsworth, San Francisco.

San Francisco's Deaths.—The report of the statistician of the health department for the fiscal year which closed June 30, shows 9687 deaths during the year, an increase of 751 over 1899-1900. Of this number, 2762 deaths were of soldiers and non-residents. The net mortality among residents was therefore 6925. Tuberculosis caused 1100 deaths; cancer, 187; diphtheria, 93; typhoid fever, 70; heart disease, 524, and suicide, 125.

DISTRICT OF COLUMBIA.

Dr. R. Henderson Graham, Washington, will sail for Europe on the *Wilhelm der Grosse*, August 13.

Extension to Insane Hospital.—Bids for the construction of the extension to the Government Hospital for the Insane, for which $1,000,000 was appropriated by the last Congress, closed August 2.

New First-aid Pouch.—Major J. Van R. Hoff has designed a first-aid package, to be carried by the soldier in the field, especially in time of war, where a great many soldiers mislay, lose or throw away the valuable packages. The package consists of a pouch fitted with a flap, the whole made of the same webbing as the Mills cartridge belt, to which it is attached, and from which it is suspended by means of two small wire hooks. The pouch is detachable, and the flap is secured by means of fastenings such as are in common use on the wrists of gloves. The board of ordinance and fortifications has allotted $500 for the purchase of probably 2000 of these pouches, which will be issued to the army for practical trial.

FLORIDA.

Dr. Louis De M. Blocker, for ten years physician and surgeon to the Florida Hospital for the Insane, Chattahoochee, has resigned, and after post-graduate studies expects to resume private practice.

Dr. William D. McNamar, Jacksonville, has been appointed medical inspector by the Jacksonville Relief Association. After the discontinuance of the emergency hospital it was found that there still remained many worthy fire-sufferers who needed medical care, and the office of medical inspector was created to look after these patients.

Transfer of Quarantine Stations.—The State Board of Health has entered into an agreement with the Treasury Department for the transfer to the U. S. Marine-Hospital authorities of all the state's quarantine stations, that at Mullet Key to be purchased on an appraised valuation and the others to be leased for a nominal rental with privilege of purchase. The stations will continue to be operated by the force now employed. Payment for the Pensacola quarantine plant, under the act passed by the legislature at its recent session, will, of course, depend on the purchase of the same by the Treasury Department.

GEORGIA.

Dr. Dunbar Roy, Atlanta, who has been ill with appendicitis, is now convalescing from the operation.

The Hospital for Incurables, Atlanta, is embarrassed financially so that in spite of the fact that there are 82 applicants for admission to the institution, it can accommodate only 10. An effort is being made to raise a maintenance fund by popular subscription.

The Presbyterian Hospital, Atlanta, was opened to the public last month. It has an initial capacity of 25 to 30 beds. Its medical staff consists of Dr. Marion McH. Hull, chairman, and Drs. Stephen T. Barnett, Cyrus W. Strickler, James N. Ellis, Edward C. Davis, Miller B. Hutchins, Michael Hoke, John L. McDaniel, James McF. Gaston, Jr., Arthur G. Hobbs, James M. Crawford, and Walter B. Emery.

ILLINOIS.

Dr. Carl G. Muehlmann, Pekin, has been appointed physician of Pekin Township, succeeding Dr. William Niergarth.

Peoria's new Isolation Hospital is completed and was inspected by the mayor and the aldermanic committee, July 27. The building is large, roomy and airy, and has wards for men and women.

Dr. Harry R. Lemen, Upper Alton, who served as a medical officer in the war with Spain, and thereafter in the Philippine Islands, has been commissioned captain and assistant surgeon of volunteers.

Barnes Medical College.—At a recent meeting of the Illinois State Board of Health, the Barnes Medical College of St. Louis was declared a medical institution not in good standing with the Illinois State Board of Health.

Anthrax is abroad in Northern Illinois. A farmer at Lake Zurich is said to have died from the disease, and farmers at Lake Zurich, Palatine and Long Grove are ill, but will recover. An epidemic among the cattle is threatened.

St. Louis physicians who practice in East St. Louis must hereafter possess an Illinois license. The local board of health has issued an order to this effect on account of the alleged failure of certain St. Louis physicians to comply with the law regarding the notification of the local health board of communicable diseases.

Chicago.

The Graduate Nurses' Association of Illinois, whose object is to obtain state recognition for trained nurses, was organized August 3.

Dr. Joseph E. Raycroft, acting athletic director of the University of Chicago, has been appointed past assistant surgeon with the rank of lieutenant, and assigned to the Illinois naval militia.

The volunteer medical inspectors have done such efficient service in improving sanitary conditions and reducing infant mortality during the recent heated term that the Department of Health has issued a call for fifty more physicians and nurses.

Epizootic.—Bacterial investigations in the laboratory of the secretions from the throats of horses affected by the prevailing epizootic show some similarity of the germ to that of influenza, but with such differences as to allay the apprehension that the disease is communicable to mankind, as was at one time feared.

Betiero Not Registered.—The secretary of the State Board of Health informs us under date of August 3 that the news item stating that Betiero, the hypnotist, who claimed to be a physician, was duly registered is incorrect, that the individual does not hold a certificate from the Board and that the Chicago Department of Health has been authoritatively so informed.

Dr. George W. Webster, because he contravened the inalienable rights of physicians of Ludington, Mich., to treat emergency cases gratuitously, has had a warrant sworn out against him for practicing medicine in Michigan without a license. Dr. Webster's offense consisted in removing a fish-hook from a little girl's hand, and for this service he made no charge. The warrant, however, was not served.

The continuous session which is in force at Rush Medical College has not been a failure, as was suggested in the lay press. Dr. John M. Dodson, dean of students at this institution, states that the quarterly system has been found especially

adaptable to the medical school, possessing great advantages, and is deemed by the faculty and trustees of the college to be a great advance in medical education. The example of Rush Medical College in instituting such a plan has already been followed by two or three other medical institutions and promises to be followed by others.

Public Health Conditions.—A decrease of 91 deaths, during the week ended August 3, from the total of the previous week confirms the anticipation expressed in the Health Department bulletin of that week that the disastrous effects of the unprecedented hot weather had then culminated. So, too, as to the excessive typhoid-fever mortality, due to the continuous water pollution between June 24 and July 3. Although there were 20 typhoid deaths reported last week, as against 13 during the previous week, the numbers reported toward the close of the week indicate that the outbreak from that pollution is substantially at an end—the daily deaths having been 6, 6, 3, 2, 1, 1, 1. It is probable that there will be another increase within three or four weeks from the pollution of last Monday, but it is not likely to be so severe. In all other respects the public health conditions are entirely satisfactory; there were fewer cases of the contagious diseases reported last week than in any other since the contagious-diseases division was established. But one case of smallpox was discovered, three were discharged and there are only six remaining in the Isolation Hospital. The publicity given by the daily press to the efforts of the department to improve the quality of the milk supply has already effected a great improvement in quality. Formalin adulteration has almost entirely ceased and the percentage of samples found below grade has greatly diminished within the past two weeks.

IOWA.

Dr. **Smith A. Spillman,** Ottumwa, has been made a member of the pension examining board, vice Dr. Benjamin F. Hyatt, deceased.

Smallpox.—The Health Department of Des Moines received reports of 19 cases of smallpox for the last week in July. There are 8 cases in the isolation hospital.

Dubuque physicians have been notified by the health officer that they must report communicable diseases to the Health Department within the time prescribed by law. The city recorder stated that two recent cases of smallpox had not been reported to him.

Faculty Changes.—The Sioux City College of Medicine announces the following changes in the personnel of the faculty: Dr. J. H. Robbins becomes professor of pathology, histology and bacteriology, vice Dr. Hal L. Huvetson; Dr. John A. Dales succeeds Dr. Jastram as professor of anatomy and Dr. Willis W. Dean takes the chair of physiology formerly held by Dr. Dales.

MARYLAND.

Dr. **F. C. Davis,** Baltimore, sailed on July 25 for Germany.

General Vaccination.—The Health Commissioner of Baltimore has determined to enforce strictly the law requiring general vaccination.

Dr. **Florence R. Sabin** has been appointed to the fellowship in the Medical School of Johns Hopkins University, provided by the Baltimore Association for the Promotion of the University Education of Women.

Consumptives in Street Cars.—Objection has been made to persons riding to the Consumptive Hospital on the street cars in Baltimore, on the ground that the disease is liable to be thus communicated to the well.

Hospitals and Delirium Tremens.—Some comment has been occasioned by the refusal of four hospitals and the city almshouse to admit a man with delirium tremens, who afterwards died in the city jail. Some of these institutions are recipients of city appropriations and the supervisors of city charities are making an investigation.

Smallpox.—Dr. John S. Fulton, secretary of the State Board of Health, was summoned to Washington County on July 22 by Dr. O. H. W. Ragan, Hagerstown, local health officer, and found a family of four near the Pennsylvania line, suffering with smallpox. None of them had ever been vaccinated. Dr. Fulton quarantined the house. These are the only cases of smallpox at present in Maryland.

MICHIGAN.

Dr. **George Dock,** Ann Arbor, is in Europe.

Dr. **William E. Jones,** a physio-medical physician and health officer of Hinchman, is ill with smallpox.

Dr. **Robert T. Tapert,** Detroit, has been appointed assistant surgeon of the police department and assigned to duty at Belle Isle.

New Disease in Michigan.—At the Michigan Asylum for the Insane several cases of contagious disease have occurred which it is said is not smallpox, chicken-pox or varioloid and which the physicians hope to classify. The ultimate result will probably be smallpox, as has been the case in so many other epidemics of pseudo-variola during the past two years.

MISSOURI.

Smallpox in Kansas City.—Eight new cases of smallpox were discovered by the Board of Health, July 25, and since that time the average has been about one a day. The isolation hospital on that date had eighteen patients.

Detention Hospital for Insane.—Dr. George O. Coffin, city physician of Kansas City, has requested the city council to appropriate $5000 for the erection of a detention hospital for the insane. At present the only accommodation for insane individuals pending their commitment to asylums, is the City Hospital.

Milo B. Ward Memorial.—At a special meeting of the Kansas City Academy of Medicine, held July 29, the following resolutions regarding the late Dr. Milo B. Ward were adopted: WHEREAS, Almighty God, in his infinite wisdom, has seen fit to call from his earthly field of usefulness to that haven of rest above, Dr. Milo Buel Ward, our associate and Fellow of this Academy, therefore be it *Resolved*, That Kansas City Academy of Medicine, appreciating his sterling worth, ability and many virtues, feels keenly the great loss it has sustained in his untimely death. He was our friend as well as our colleague, and his labors were for us and for the profession of medicine in general. His death is a loss, not only to his family and to his circle of friends, but to the profession of Kansas City, of this state and the nation. *Resolved*, That we extend to the stricken family our sincere sympathy in this our common bereavement. And be it further *Resolved*, That a copy of these resolutions be spread upon the minutes of this association, a copy be sent to the family and one to each of the daily papers and medical journals.

MONTANA.

St. Peter's Hospital, Helena, which was damaged by fire in May last, has received $15,000 from an anonymous source, for its rebuilding.

Smallpox is prevalent among the Kootenai Indians on the Flathead reservation, near Dayton. Five deaths have occurred in the last month, and there are now 35 cases of the disease.

Cree Indians infected with smallpox are being held in quarantine—one band near Kalispell, the other near Missoula. They belong in Canada and came across the border after the Riel rebellion.

Four Butte physicians who neglected to comply with the law requiring filing of birth certificates and notification of communicable diseases were arrested, plead guilty, were fined and paid their fines.

NEBRASKA.

Dr. Andrew B. Somers, Omaha, has been appointed secretary of the State Board of Health, succeeding Dr. Ole Grothan, St. Paul.

Osteopaths Licensed.—Thus far, 35 osteopaths have been licensed in Nebraska. At the last meeting of the State Board of Health 19 regular physicians and 17 osteopaths were licensed.

Returned to Ord.—Dr. Charles E. Coffin, formerly superintendent of Nebraska State Insane Asylum, and Dr. Minerva H. Newbecker, late assistant physician of the State Insane Asylum, have relocated at Ord.

NEW YORK.

Dr. Lemon Thomson has been elected health officer of Glens Falls, vice Dr. George H. McMurray, deceased.

Smallpox mortality in the state during June reached 74, the highest number for any month in the state's history as verified by the records of the Health Board.

Employees at State Hospitals.—Governor Odell intends to institute a policy of retrenchment as regards the state hospitals. He found in his recent tour of inspection that at Kings Park Hospital there were 500 employes to care for 2800 inmates, and a similar proportion at other institutions.

The Weather in July.—According to the United States Weather Bureau with its temperature records of thirty-one

years, July, 1887, had an average temperature of 77 degrees. The highest record for July, 1901, was 99 degrees on the second day. The lowest was 64 degrees early in the morning of the 27th. The mean maximum temperature was 85 degrees for the month and the mean minimum was 71 degrees. The mean temperature for the month was 78, or 1 degree higher than that of 1887. The local forecaster up to within a few days of the closing expected the record to be at least 79, but was disappointed to the extent of one degree.

Buffalo.

Dr. Alvin A. Hubbell, for several years associate editor of the *Buffalo Medical Journal,* has resigned from the editorial staff.

Dr. Roswell Park's excellent medical organization at the Pan-American Exposition has been warmly complimented by visiting physicians and sanitarians, who speak in the highest terms of the conduct of the hospital.

The medical department building of the University of Buffalo is to be enlarged by an additional story. The new story is to be used for laboratory purposes. The college amphitheater is also to be raised and improved.

New York City.

Brooklyn Beneficiaries.—The will of Mrs. Harriet Bacon Smith, of Brooklyn, provides for bequests of $10,000 to the Eye and Ear Hospital of Brooklyn and $4000 to the Diet Dispensary of Brooklyn.

Dr. John S. Billings has sailed for Europe on the *Teutonic.* His destination is Skibo Castle to see Andrew Carnegie. He takes a letter from the city controller and a contract which requires Mr. Carnegie's signature.

War on the Staten Island Mosquito, having for its purpose the extermination of the malaria-spreading pest, has been begun by Dr. Alvan H. Doty, health officer of the port of New York. Selecting a little hamlet known locally as Concord, Dr. Doty began his experiments. He found a series of ponds filled with stagnant water, above which clouds of mosquitoes swarm every evening. Dr. Doty has an oil tank car and a tank wagon, loaned by the Standard Oil Company, which has also contributed all of the crude petroleum oil to be used in the experiments. The fluid is passed from the wagon through rubber hose to the perforated iron pipes, arranged like a gridiron and suspended from a wooden float. The float is pulled from one side of a pond to the other until the entire surface receives a coating of the oil. After all the ponds have thus been treated samples of the water will be examined for the larvæ, and a second census of the locality afflicted with malaria will be taken to ascertain if there has been any diminution in malaria in this region.

OHIO.

Dr. William H. Knauss, Newark, has been appointed captain and assistant surgeon in the Ohio National Guard and assigned to the Fourth Infantry.

Dr. P. Maxwell Foshay, Cleveland, has been appointed a member of the Board of Trustees of the State Hospital for Epileptics, Gallipolis, vice J. D. Brown, Athens, resigned.

Deaths Due to Heat.—On July 29, what proved to be the culmination of the late hot spell, 50 deaths, the largest number in the history of the city, were reported to the health office of Cincinnati.

Dr. H. C. Rutter, superintendent of the State Hospital for Epileptics, Gallipolis, has resigned, to take effect September 1. His resignation has been accepted by the trustees and a leave of absence granted him for four weeks.

G. A. R. Encampment.—Dr. George C. Ashmun has been placed in charge of the medical arrangements for the Grand Army encampment in Cleveland next month. He will establish headquarters from which medical aid will be furnished as required. He has a corps of 24 physicians to assist him.

Vaccination and Tetanus.—Vaccination has been temporarily suspended in Cleveland on account of tetanus developing in four cases in which the infection appeared to have been received from vaccination sores. The Health Department is now arranging for a preliminary testing of all vaccine that shall hereafter be used. In one of the fatal cases the vaccination was made by a physician on his own sister, and was closely watched.

PENNSYLVANIA.

Compulsory vaccination has been ordered in Lebanon.

Dr. J. L. Forwood, Chester, has been re-appointed a member of the State Quarantine Board.

The White Haven Sanatorium for Consumptives was opened for the reception of patients last week. At present only 20 patients can be accommodated.

TENNESSEE.

Dr. Heber Jones, Memphis, president of the State Board of Medical Examiners, has resigned and has been appointed a member of the State Board of Health.

Dr. Howard A. Ijams, Knoxville, has resigned from the medical department of the National Guard. He was an assistant surgeon and assigned to the Sixth Infantry.

Dr. William A. Duncan, smallpox physician of Chattanooga, has resigned and re-assumed his duties as city physician. Dr. H. P. Larimore has been appointed smallpox physician in his stead.

Changes in Vanderbilt Faculty.—Drs. Richard A. Barr and Lucius E. Burch, Nashville, have been appointed adjunct professors of abdominal surgery and gynecology, vice Dr. Richard Douglas, resigned.

CANADA.

Dr. Heiser, the representative of the United States Hospital Service at Quebec, is detaining on an average eight immigrants a week destined for United States points.

A military medical board will shortly convene in the Northwest Territories to consider applications for pensions by those who served in the South African campaign.

Anthrax Vaccine from Chicago.—The Dominion Department of Agriculture has at last overcome the difficulty in obtaining sufficient anthrax vaccine from a vaccine company in Chicago for the use of stock holders in Stormont County, Ontario.

The Health of the Province of Quebec.—The secretary of the board of health has issued a statement which shows the number of cases of smallpox since January 1 last. Thirty-four municipalities have now a clean bill of health. There is a record of 337 cases with one death.

Animal tuberculosis is communicable, according to the expressed opinion of Dr. Laberge, health officer of Montreal, the statements of Dr. Koch to the contrary, notwithstanding; Montreal will still continue to guard against the spread of the disease from animals to human beings.

Toronto's bill of health for July, according to medical health officer Dr. Sheard, is the best in eight years. There are very few cases of contagious diseases, and only three cases of typhoid have occurred. The purity of the drinking water has not been surpassed since 1894. It at present shows only 104 colonies of bacteria to every cubic centimeter.

The mortality statistics for Montreal for the past week were much lower than what they have been for some time. There were only 118 deaths; and the infant mortality has dropped off considerably. There was one death each from diphtheria, scarlet fever, measles and whooping cough; two from typhoid fever; infantile debility, 56; consumption and other chest diseases, 19.

Decision on Site of Hospital.—A judgment re the proposed contagious diseases hospital for Ottawa, which is very lengthy, covering ten pages of foolscap paper, has just been handed out by Judge McTavish. It is the result of an application which sought to restrain the city from erecting a hospital on what is known as the Wurtemburg site. The judgment dismisses the application and establishes the 150-yard limit for that city, and so is of great importance in its bearing on other sites.

Conflict on Smallpox between Military and Civil Surgeons.—The provincial health authorities of Ontario have recently been devoting some time to investigating the origin of several outbreaks of smallpox in the province, notably at Burlington, Nelson and Toronto, and they have succeeded in tracing the infection to a case alleged to have been present at the Niagara Camp in May last, which annually assembles at Niagara-on-the-Lake, Ont. It would appear from the investigations, that the soldier who had the disease while in camp had been, according to the military instructions given out before the assembling of the camp, vaccinated, and the vaccine had taken well, but smallpox had run its course concurrently with it, and the military surgeons had diagnosed the rash as being due to the vaccine, whereas, in fact, it was the genuine smallpox. There are some thirteen cases which the health authorities claim they can directly trace to this one case at Niagara; but the military men deny the source of the infection, and the whole affair has caused some little friction be-

tween the provincial health department, the Toronto health department and the surgeons who were in camp at Niagara.

FOREIGN.

The Caduceus.—Under this title a new journal, devoted exclusively to military medicine and surgery, has commenced publication in Paris.

Australian Physician Knighted.—The honor of knighthood has been conferred on Dr. James Graham, mayor of Sydney, during the recent visit of the Duke and Duchess of Cornwall and York.

Dr. J. **Roussel**, of Geneva, Switzerland, author of numerous works on the transfusion of the blood, and editor of *Médecine Hypodermique*, a journal founded to proclaim the advantages of oil injections, died recently.

New Journal of Gynecology.—At a recent meeting held in London, presided over by Sir John Williams, it was decided to commence a new journal to be called the *British and Colonial Journal of Obstetrics and Gynecology*.

The French Congress of Surgery will meet this year at Paris, October 21. Lucas-Championnière will preside. Février will deliver the principal address on the "Surgery of the Spleen," and Broca on "Tubercular Adenitis."

The Virchow Building.—The Berlin Medical Society has decided to erect a permanent building in honor of the eightieth birthday of its honorary president, Virchow. The site for the new "Virchow Haus" is to be donated by the city. Nearly $50,000 have already been subscribed to the building fund.

Journal for Chemical Physiology and Pathology.—Professor F. Hofmeister, of Strassburg, has founded a new periodical for biochemistry, with the title *Beitraege zur Chemischen Physiologie u. Pathologie*. It is to be published by F. Vieweg & Son, of Braunschweig. Twelve numbers will form a volume, to cost 15 marks.

Vacant Chair in Australia.—The chair of pathologic anatomy at Sydney is seeking an incumbent. The salary is about $750 with a pension of $300 after twenty years of service. Traveling expenses out will be paid. The candidates must not be more than 40 years of age. Applications are received at the London General Agency for New South Wales, 9 Victoria Street, London, S. W.

Student Riot in Naples.—The students considered Professor d'Antona too severe in the recent examinations in the medical course at Naples. They commenced to upbraid him riotously, and when expelled from the hall, waylaid and injured him. The report in the *Gaz. Med. de Paris* states that he was only saved by the efforts of the police from being lynched. The professor is said to have caused the death of a patient by a mistake, not long ago, and the students made this a pretext for their rebellion.

Married.

RICHARD S. PATTILLO, M.D., to Miss Anna M. Doyle, both of Chicago, August 6.

ALBERT E. MOWRY, M.D., Chicago, to Miss Ruth P. Lehman, of Forsyth, Ill., July 29.

W. H. EARGLE, M.D., Fleming, Texas, to Miss Effie Anderson, of Comance, Texas, July 21.

JULIUS P. SEDGWICK, M.D., Eveleth, Minn., to Miss Emily Weeks, of Lincoln, Neb., August 2.

Deaths and Obituaries.

Milo **Buell Ward, A.M., M.D.,** College of Physicians and Surgeons, Keokuk, Ia., 1879, died at his home in Kansas City, Mo., July 28, aged 53, after an illness of thirty-two weeks. His health was broken by an attack of dysentery, which he contracted while in camp at Chickamauga, Tenn., during the Spanish-American war. At the outbreak of that war he was appointed chief surgeon of the Second Brigade, U. S. V., and at the end of the war was a member of the board inspecting the camps of volunteers. He was professor of clinical gynecology in the University Medical College, Kansas City; member of the Judicial Council and ex-chairman of the Section on the Diseases of Women of the American Medical Association; ex-Fellow of the American Associaton of Obstetricians and Gynecologists; ex-President of the Western Surgical and Gynecological Association, and Fellow of the Kansas City Academy of Medicine. At a special meeting of this Academy, called for that purpose, resolutions expressing their sorrow at their loss and that of the medical profession in his death and paying tribute to his memory, were adopted.

Henry Buckingham Horlbeck, M.D., Medical College of the State of South Carolina, Charleston, 1859, died at his home in Charleston, August 2, aged 62. He was appointed surgeon in the First South Carolina Infantry at the beginning of the civil war and served until the end of the war. For many years he was health officer of the Charleston port and did much toward perfecting the quarantine service for the protection of the southern ports against yellow fever. He was vice-president of the American Public Health Association, 1890-91, and was a member of the American Medical Association.

William Argyle Watson, M.D., University of Pennsylvania, Philadelphia, 1851, died from Bright's disease, at his home in Newport, R. I., July 27, aged 74. At the beginning of the civil war he entered the navy as a surgeon and performed valuable service with the gulf squadron. After retiring from the navy at the close of the war, he practiced in New York until two years ago, when he retired to his country home at Newport. He belonged to many social and patriotic organizations.

Leonidas Russell, M.D., Jefferson Medical College, Philadelphia, 1855, at his home in Washington, July 26, aged 66. He was practicing in Owensboro, Ky., when the civil war began. He was appointed assistant surgeon in the Second Kentucky Volunteers and served until the battle of Shiloh, where he was severely wounded and so incapacitated for further service that he resigned in 1862. He afterward served in the Tennessee legislature.

Abel C. Roberts, M.D., University of Michigan, Ann Arbor, 1853, physician and editor, died at his home in Fort Madison, Ia., July 28, from a cerebral hemorrhage, aged 71. He was appointed as a surgeon at the outbreak of the civil war, and in 1863 was commissioned major and surgeon of the Twenty-first Missouri Infantry, serving in that capacity until mustered out in 1866. He was editor of the Fort Madison *Democrat*, which paper he founded July 4, 1869.

John S. Hurd, M.D., University of Pennsylvania, Philadelphia, 1855, died while visiting at Hampton, Ia., July 23, from a heat stroke, aged 70. He graduated from Bowdoin College in 1851, and after studying medicine went to Franklin County, Iowa, where he has practiced since that time, with the exception of the three years that he served in the Thirty-second Iowa Infantry during the civil war. His home was at Chapin.

John H. Warren, M.D., Rush Medical College, Chicago, 1849, died at Palmyra, Wis., August 1, after a long illness, aged 76. He was elected to the State Senate of Wisconsin in 1857 and served for five years; he was appointed collector of internal revenue by President Lincoln, in which capacity he served for seven years. He lived in Janesville for the past thirty years.

Stephen Foss, M.D., Harvard University Medical School, 1859, died at his home in Brooklyn, August 1, after a long illness, aged 76. He was a graduate of Bowdoin College and was an excellent Greek scholar. When the civil war began he was practicing medicine in Cleveland, Ohio, and he enlisted as an assistant surgeon.

Charles C. Yemans, M.D., Detroit Medical College, 1872, died at his home in Detroit, Mich., July 21, as the result of the heat. He was a lieutenant in the 24th Michigan Infantry during the civil war, and was president of the Wayne County Medical Society for two years.

Charles St. John, M.D., acting assistant surgeon, U. S. army, was shot and killed in a skirmish with the insurgents near Mantangas, P. I., May 22, while voluntarily accompanying a detachment from the 26th U. S. Infantry, sent out to surprise an insurgent outpost. He was buried at Daet, P. I.

Charles W. Hayt, M.D., College of Physicians and Surgeons, New York, 1889, was missed from a steamer on Lake Erie between Buffalo and Cleveland on the night of July 23-24. He was a practitioner of Corning, N. Y., and a Fellow of the Academy of Medicine of that city. At one time he resided in New York City.

Edwin R. Bishop, M.D., Trinity Medical College, Toronto, 1888, died from pulmonary tuberculosis, at Brantford, Ontario, July 24, aged 44. He was on the staff of the Willard (N. Y.) State Hospital for eight years, and up to a few months ago practiced in Geneva, N. Y.

R. F. Lewis, M.D., University of New York, died after a long illness, at his home, Lumberton, N. C., July 14, aged 64. He received his academic training at the University of North Carolina, graduating in 1858, and served as a surgeon during the civil war.

P. Calvin Mansch, M.D., Bellevue Hospital Medical College, New York, 1889, died of phthisis at his home, Collegeville, Pa., July 30. Since 1894 he has been director of the biologic and chemical departments at Ursinus College.

William D. Maddux, M.D., New York University, 1842, which was the first class graduated at that school, died at his home in Monticello, Ga., July 22, aged 87. He was a charter member of the Georgia State Medical Association.

James P. McCombs, M.D., New York University, 1860, died at his home in Charlotte, N. C., July 23, aged 65, from a stroke of paralysis. He served through the civil war, since which time he has practiced in Charlotte.

George W. West, M.D., Richmond Medical College, Richmond, Va., died at his home in Washington, July 24, as the result of a heat stroke, aged 58. He was a member of the American Medical Association.

John R. Crosswhite, M.D., Missouri Medical College, St. Louis, 1877, died from heat prostration, at his home in St. Louis, July 24, aged 48. He was demonstrator of anatomy at the Missouri Medical College.

Oren C. Wright, M.D., Western Pennsylvania Medical College, Pittsburg, Pa., 1894, died at Luray, Va., where he had gone for his health, July 26, aged 55. He formerly practiced in Pittsburg.

Loreston J. King, M.D., Columbus Medical College, Columbus, Ohio, 1880, died at his home, Santa Rosa, Cal., July 22, after a long illness, aged 52. He was a native of Jamestown, N. Y.

Cort F. Askern, M.D., Kentucky School of Medicine, Louisville, 1883, died at Terra Haute, Ind., August 1, as the result of a fall from a second story window. He was 60 years of age.

Katherine Miller, M.D., Northwestern University Woman's Medical School, Chicago, 1882, died at a hospital in Chicago, August 1. She was practicing at Lincoln, Ill.

Joshua Miller, M.D., University of Michigan, Ann Arbor, 1872, medical superintendent of the Arizona State Insane Asylum, died during July, at Flagstaff, Arizona, aged 55.

Gilbert E. Palen, M.D., Albany Medical College, 1855, died at his summer home in Ocean Grove, Pa., July 28, from pneumonia, aged 69. He practiced in Philadelphia.

William Singleton, M.D., Kentucky School of Medicine, Louisville, 1851, died at his home in Covington, Ky., July 23, after six weeks' illness, aged 73.

Edgar H. Heflin, M.D., University of Iowa, Iowa City, 1883, formerly of Minneapolis, died in the Stillwater prison, Minn., July 26.

Thomas J. Clancy, M.D., University of Arkansas, Little Rock, 1897, died suddenly at his home in Scales Mound, Ill., July 29.

John H. Welch, M.D., Barnes Medical College, St. Louis, 1898, died at his home in Beecher City, Ill., July 23, aged 30.

Max G. Kellner, M.D., Rush Medical College, Chicago, 1882, died at his home in Chicago, August 2, aged 50.

Valentine Walsh, M.D., University of Dublin, 1871, died in New York at the Presbyterian Hospital, July 29.

Societies.

COMING MEETINGS.

American Association of Obstetricians and Gynecologists, Cleveland, Ohio, Sept. 10, 1901.

American Academy of Railway Surgeons, Chicago, Sept. 12-13, 1901.

Mississippi Valley Medical Association, Put-in-Bay, Sept. 12-14, 1901.

American Public Health Association, Buffalo, Sept. 16-20, 1901.

Medical Society of the Missouri Valley, St. Joseph, Mo., Sept. 19, 1901.

Medical Society of the State of Pennsylvania, Philadelphia, Sept. 24-26, 1901.

American Electro-Therapeutic Association, Buffalo, Sept. 24-26, 1901.

The American Electro-Therapeutic Association will hold its eleventh annual convention in Buffalo, September 24, 25 and 26. Dr. George E. Bill, Harrisburg, Pa., is secretary.

Southwestern Minnesota Medical Society.—This Society met at Adrian, Minn., July 27, and elected the following officers: President, Dr. William J. Taylor, Pipestone; vice-president, Dr. Emil King, Fulda; secretary and treasurer, Dr. Herbert D. Jenckes, Pipestone.

The American Public Health Association will hold its twenty-ninth annual meeting in Buffalo, September 16, 17, 18, 19 and 20, at the armory of the Seventy-fourth Regiment. The headquarters of the Association will be the Hotel Niagara. Special rates will be offered on all railroads.

Franklin County (Pa.) Medical Society.—This Society met at Chambersburg, July 16, and the following officers were elected: Dr. P. Brough Montgomery, Chambersburg, president; Dr. Oliver P. Stoey, Roxbury, and Dr. J. W. Croft, Waynesboro, vice-presidents; Dr. John J. Coffman, Scotland, recording secretary; Dr. Henry C. Devilbiss, Chambersburg, corresponding secretary, and Dr. David Maclay, Chambersburg, treasurer.

American Association of Obstetricians and Gynecologists.—This Association will hold its fourteenth annual meeting at the Hotel Hollenden, Cleveland, Ohio., Sept. 17, 18 and 19, 1901, under the presidency of Dr. William E. B. Davis, Birmingham, Ala. The committee on arrangements is composed of Drs. M. Rosenwasser and William H. Humiston, Cleveland, either of whom may be addressed concerning rooms or other local information regarding the meeting.

Tri-State Medical Association.—This Association, composed of physicians of Western Maryland, West Virginia and Western Pennsylvania, met at Cumberland, Md., July 25. The following officers were elected for the ensuing year: President, Dr. William F. Barclay, Pittsburg; vice-presidents, Dr. Henry W. Hodgson, Cumberland, Dr. Frank L. Baker, Burlington, W. Va., and Dr. Bruce Lichty, Meyersdale, Pa.; recording secretary, Dr. Percival Lantz, Alaska, W. Va.; corresponding secretary, Dr. Frederick W. Fochtman, Cumberland, and treasurer, Dr. E. B. Claybrook, Cumberland.

Mississippi Valley Medical Association.—The twenty-seventh annual meeting of this Association will be held September 12, 13 and 14, at Put-in-Bay Island, Ohio, and indications point to a very large attendance. The preliminary program contains names of the foremost men in the country and the variety of the papers to be presented has never been equaled at previous meetings. The annual orations will be delivered by Dr. Frank S. Billings, Chicago, in Medicine, and Dr. Reginald Sayre, New York City, in Surgery. The meeting will be presided over by Dr. A. H. Cordier, Kansas City. Unusually attractive railroad rates will be in effect: one fare for the round trip, via Cleveland, and one and a third fare for round trip on the certificate plan, via Toledo, Sandusky and Detroit. The secretary is Dr. Henry E. Tuley, Louisville, Ky.

Correspondence.

Bovine Versus Human Tubercle Bacillus.

BALTIMORE, Aug. 3, 1901.

To the Editor:—The idea occurred to me, while reading Dr. Koch's address, made before the British Congress on Tuberculosis, London, July 23, 1901, that much light might be thrown on the relations of the bovine tubercle bacillus with the human tubercle bacillus, about which lately there has been so much controversy, if injections of tuberculin prepared from

the bovine tubercle bacillus were contrasted with those prepared from the human tubercle bacillus in their effects on persons afflicted with tuberculosis. I can find no evidence in the literature that tuberculin has ever been made from the bovine bacillus and tried on human beings, a very simple and harmless thing to do. Steps have been taken by me to obtain this tuberculin, and I desire you to publish this as a preliminary announcement to some subsequent work on this subject.

Very truly yours,

CLEMENT A. PENROSE, M.D.

A New Operative Method for Exposing the Seminal Vesicles and Prostate for Extirpation.

TOLEDO, OHIO, August 2, 1901.

To the Editor:—Dr. Fuller, in the issue of THE JOURNAL, July 6, in replying to my letter failed to notice that my contention was with him, and not Zuckerkandl. I know nothing about a Zuckerkandl operation upon the prostate. I have been contesting the claims of Dr. Fuller, trusting that if I showed that my claims and those that he makes were alike, that he would accept his own construction that there is a real difference between the claims of Zuckerkandl and the claims which I made and published in the *Medical Record*, August 6, 1892. My charge is that Dr. Fuller has changed the position of my patient from the dorsal to the ventral decubitus, after the suggestion of Von Dittel and Kraske, and, in an unimportant way, altered the U-shaped form of my incision through the skin to two horizontal lines along the pubic rami, which encroach upon each other, but before meeting, a transverse incision is made immediately in front of the sphincters and behind the transversus perinei. This, I claim, is merely altering the appearance of the outside cut, and that the incision through the loose skin over the ischio-rectal region is unimportant to the success of the operation; that the real encroachment upon my operation is in opening into the loose intermuscular connective tissue between the anal sphincters and levator ani internally, and the transversus perinei and the pubic rami externally, and ascending through this space to the prostatic region, so as to perform an operation without the necessity of ligating blood-vessels, in accordance with my statements in the *Medical Record*, in 1892. Those acquainted with the anatomy of the ischio-rectal region will clearly understand that it is impossible to reach the prostate through any other perineal route without great loss of blood. This is because the branches that supply the parts are derived from two distinct sources; namely, the internal pudics and the inferior mesenteric arteries. The internal pudics lie deeply to the outside of the field of operation and send off no branches until the anterior border of the transversus perinei in the perineal space is reached. The hemorrhoidal vessels, from the inferior mesenterics, descend on the rectum and supply the sphincters without giving off anastomotic branches to join the branches from the internal pudics. This makes the ascent to the prostates, in the space above described, possible without the division of any vessels needing a ligature. In Dr. Fuller's criticism of the Zuckerkandl operation, which appeared May 4, he stated that it was "a bloody and tedious operation, with numerous vessels to be ligated in inaccessible positions," and further "that the space afforded by the Zuckerkandl incision was too limited to allow a surgeon to do any accurate work in connection with organs so deeply situated as the seminal vesicles." These were the points which he gave out as being corrected by what he characterized as his "new method" of operating. Now, if Zuckerkandl made an operation which justified this criticism how can Dr. Fuller associate the Zuckerkandl operation with that of my own? My U-shaped incision around the front and sides of the anus can be extended to any depth posteriorly to suit the needs of the operator and the case. I have varied it without thinking that it in any way changed the principles of my original operation. Replying to Dr. Fuller's statement that Dr. Samuel Alexander, of New York, had written to me informing me of the Zuckerkandl operation, I wish to say, that Dr. Alexander never communicated a word to me on the subject; that I wrote to him on two different occasions and lastly wrote a letter to the *Medical Record*, which was published in the issue, December 10, 1898, complaining about his encroachments upon the operation which I had previously described. Dr. Alexander has never replied to this open letter. Respectfully, JOHN S. PYLE, M.D.

Oversupply of Medical Graduates.

BURLINGTON, IOWA, July 29, 1901.

To the Editor:—Your editorial on the subject of "Oversupply of Medical Graduates" (THE JOURNAL, July 27, 1901), coming closely upon the heels of certain invitations to "kindly furnish the undersigned" (in each instance a secretary of a medical faculty) with the names of those I know who expect to study medicine, encourages me to make one reply for all such requests and thus publicly. In the first place, I will say that if I knew any who contemplated the study of medicine I would, because of the oversupply to which you have referred, use all of my powers of dissuasion. Should I succeed in this there would of course be no need to make reply.

But, if I should fail to dissuade, could I honestly comply with the invitation? I take it that the average person who contemplates studying medicine has selected some established practitioner of medicine to act as an adviser and guide; and that he has also made it his business to look up the announcements of medical colleges extensively and in detail. He has therefore the advice he desires and a competent knowledge of the facilities offered at the various schools. Under such circumstances one naturally asks in this age of "graft" what inducements medical colleges have to offer that they should desire to be put in position to solicit business.

To some of us who graduated twenty-five or thirty years ago the teaching methods of to-day present no more revelations than the business methods in medical schools; and we are simply wondering what will come next.

Will the schools devote more time (as in our day) to the teaching of *noblesse oblige* (the spirit of medicine and the sacrifices of its devotees), or will they be sending out commercial travelers to get what can not be gotten by correspondence?

Truly yours, H. B. YOUNG, M.D.

Oversupply of Medical Graduates—A Remedy in Medical Missions.

CINCINNATI, OHIO, July 30, 1901.

To the Editor:—Your editorial[1] on "Oversupply of Medical Graduates," presents statistics which are startling, because they prove that relief from the present oversupply is impossible under present conditions. There is also little prospect that those conditions will be altered so as to reduce the output of the "doctor factories" to any appreciable extent. In fact, we can only expect an increase. While everybody knows that there are four or five times more medical colleges than are necessary, the benefits attached to a professorship in even the poorest of them are such that "few die and none ever resign," while in order to attract the guileless student, and incidentally, his matriculation and other fees, we find the free clinics and hospitals are multiplied, in order that they may be advertised as evidence of "teaching facilities" and "abundant clinical material," etc.

It would be right and proper if the student attended medical college merely for his personal pleasure and information, or to broaden his mind, as he does when he studies the dead languages, higher mathematics, physics, etc., with no intention of using either of these subjects as a life work or to gain his daily bread. But we know that the majority of medical students cherish the expectation and the hope—poor deluded mortals—of making a living for themselves and their families by the practice of medicine. As a matter of fact it might be set down as a rule, that at present no man should deliberately enter on the practice of medicine unless already possessed of sufficient means to live comfortably without depending upon earnings from grateful patients.

If, as stated, there are 115,000 to 125,000 doctors to our population of 75,000,000, then there are 40,000 to 50,000 in

1. THE JOURNAL A. M. A., July 27, p. 270.

excess of what is necessary or desirable, as a ratio of one doctor to one thousand of population is certainly none too small if the doctors are to make their living from their practice. And, if the present excess of physicians is increasing at the rate of three thousand per year, it requires only brief calculation to show that there will be a vast "army of unemployed" in a very few years.

Now, what is to be done in the matter? The "grinding-out" of graduates will surely continue. 1. Because the average student can not be brought to see and appreciate the situation; he knows only that the study is interesting and attractive and with the enthusiasm of youth, he sees only success before him. Because the selfishness, if not cupidity, of college faculties will seldom permit a college to close or consolidate, so long as sufficient cash can be secured from students to pay expenses. 3. Because state legislative bodies can not be brought to look at proposed medical legislation from the doctors' standpoint, but always regard any restrictive medical legislation as emanating from a "doctors' trust," therefore we can not hope for relief by state legislation and the National Government has no authority to limit or control such matters. "So, there ye are," as Mr. Dooley says.

Nothing remains but to find something for these surplus thousands to do with their valuable technical knowledge, acquired at large expense of time, labor and money. There is a field which could absorb the services of every one of them and many more. It all depends upon the sentiments which actuate the graduate in determining to adopt the profession of medicine as a life work. If he be actuated only by the selfish, mercenary instinct of making a living in a genteel occupation, I have nothing to say to such a one. But if he regards the healing art as intended primarily for the relief of the miseries and sufferings of humanity and that the physician practices best who relieves the largest number of the "ills that flesh is heir to," then I say we can not for many decades have a surplus or oversupply of graduates, for the services of every qualified physician in our land are needed badly, right now, in fields where clinical material is more than ample; where opportunity for operative work is abundant; where vast unexplored fields of tropical diseases and new therapeutical remedies await the scientific labors of the modern doctor to be brought to light; where a man who desires to work has the opportunity; and where he can feel that in performing his work he is acting up to that high standard which places the medical profession side by side with the most earnest work of the church.

I refer to the work of medical missions in such lands as Africa, South America, China, India, Syria, Persia, Siam, the Philippines, etc. From all these lands comes an urgent appeal for medical missionaries. The ignorance, superstition and malpractice displayed by native physicians are appalling, and the number of patients, medical, surgical and ophthalmological, who crowd the mission stations for relief, is simply tremendous. Their entire absence of knowledge of even the rudiments of anatomy, physiology, pathology, antisepsis, and of any surgical procedures or modern therapeutic remedies, makes the native doctor a positive danger to those whom he attends and opens up a vast field for success for a modern physician of only ordinary ability. Not only this, but the thousands of faithful missionaries in foreign fields need medical protection for themselves and families against the ravages of climatic diseases and the sickness and injuries connected with their exposed life. Very many of these men and women now have to travel hundreds of miles to secure medical assistance.

The practical experience gained by many medical missionaries has been immense. Two such surgeons at one hospital in India, during one year made 1200 operations on the eye, and operated on one hundred malignant tumors. Dr. Kerr, of China, during thirty years, attended 700,000 cases and performed 40,000 operations, including 1300 for calculus, a record second only to that of Sir William Thompson.

Several important commercial ports have been opened to European trade as a result of the splendid services of a medical missionary breaking down opposition and disarming prejudice against foreigners. In 1879, at Tien Tsin, Dr. Mackenzie cured the wife of Viceroy Li Hung Chang, and thereby gained the favor of that powerful official toward western nations, which has done so much to open China. The same results have been secured in many formerly inaccessible places, which space will not permit mention of here.

Dr. Allen, an American medical missionary, was the first protestant foreigner to reside permanently in Korea. The king built him a hospital and later sent him as one of a Korean embassy to the United States Government. The beginning of the modernizing of Japan is to be credited to the medical missionaries more than to any other one thing. In Manchuria, and other points in China; at Beirut in Syria, and at several points in India, large and excellent medical schools, conducted by medical missionaries, have been in operation for a number of years.

I have mentioned these points to show the largeness and the importance of the work which lies ready for men and women who are willing to devote their lives to such fields of labor. It is therefore incorrect to say that there is a surplus or oversupply of medical graduates, if the whole world be considered the field for their usefulness.

In America there is one physician to every 600 of population, while in the foreign lands I have named there is only one to every 2,500,000. The supply of physicians here is therefore four thousand times greater than it is abroad. New York City has more physicians and medical helpers than among eight hundred millions of heathen and Mohammedans. America has twice as many physicians for the population than has Great Britain; yet on the basis of England's supply, India could busily engage 190,000 doctors and China, 260,000. At present Chicago has more physicians than both these two countries combined. Africa also needs more than 100,000 doctors; and Siam, Persia, Syria and Turkey could furnish work for 100,000 more.

Those who are interested in this work will do well to read "The Healing of the Nations," by J. R. Williamson, and "The Medical Mission," by Dr. W. J. Wanless, both of which publications can be obtained from the "Student Volunteer Movement for Foreign Missions," 3 West 29th St., New York City.

Let me conclude by quoting Dr. Livingstone's last words, written as he was dying in the heart of Africa: "All I can add in my solitude is, may Heaven's richest blessings come down on every one, American, English or Turk, who will help to heal this open sore of the world."

FRANK W. HENDLEY, M.D.

Misstatements of the Antivivisectionists Again.

SAN FRANCISCO, July 8, 1901.

On January 21, 1901, I sent a reply to James M. Brown, president of the American Humane Association, in response to a letter from him challenging me to produce proof of inaccuracy in the references to a number of certain alleged experiments and of garbling of the reports of the same. My reply was published in THE JOURNAL of the American Medical Association and the *Philadelphia Medical Journal* of Feb. 23, 1901.

In reply I received a letter from Mr. Brown saying that he expected to spend the month of February in California, and could not give attention to my letter until his return.

Mr. Brown seems to have been detained in California much longer than expected, for up to the present moment—nearly six months—I have received no further reply whatever. Indirectly, however, a certain reply has been published in the form of an anonymous pamphlet entitled "The Reality of Human Vivisection," which is called a "review" of my letter.

Not long since I had the pleasure of attending a lecture to one of his classes in moral science by Rev. Dr. Faunce, the accomplished president of Brown University. Among the virtues which he discussed was "Courage" and he pointed out the moral cowardice of anonymous letters. While such a letter is an instance of private moral cowardice, an anonymous pamphlet such as this is an instance of public moral cowardice. An honorable open foe I at least respect; one who skulks behind anonymous pamphlets I despise. The antivivisectionists seem to delight in such secrecy and anonymous attack.

There are four publications on this subject up to the present moment, to which I shall hereafter refer by number, except the last which I shall call the "review." 1. In senate document No. 78, 55th Congress, 3d Session, the last of a collection of certain antivivisectionist papers is one entitled "Human Vivisection," signed "A. Tracy." I should like to know who this mysterious "A. Tracy" is.

2. There is a pamphlet entitled "Human Vivisection," third edition, printed for the American Humane Association in 1900, which reprints this paper (with the omission of "A. Tracy's" name) and adds to it a long continuation of the misstatements of the first. This is anonymous.

3. There is a small pamphlet entitled "Human Vivisection," published by the Humane Society, Washington, D. C., chiefly a rehash of the misstatements of pamphlet No. 2. This is also without the name of any author.

4. Now comes the last pamphlet, the "review" of my letter. This is not only without the name of any author, but without even that of a publisher. It is simply dated "Boston, 1901."

The character of every one of these publications, however, is such that I do not wonder that the author wishes to conceal his identity.

The "review" (No. 4) re-prints Mr. Brown's letter to me and at the end adds: "No sufficient rejoinder to his [my] letter [in reply to Mr. Brown] would be admitted to the columns of these medical periodicals." (THE JOURNAL of the American Medical Association and the *Philadelphia Medical Journal*). The duplicity of this sentence is evident. The ordinary reader, for whom it is evidently intended, would understand that a reply had been sent to the editors of these medical journals and that they had declined to print it. This is absolutely untrue. No such communication has ever been received by the editor of either of these journals. The critical reader will see that the sentence just quoted does not definitely state that such a communication has been rejected. But for one critical reader a thousand casual readers will get the impression which the sentence was evidently intended to convey.

It is impossible for me to take up all the misstatements and misrepresentations contained in the 32 pages of this last anonymous "review," nor is it necessary to do so. That I should be honored from such a source by vilification and misrepresentation, I expected, of course, but I did hope at least that there would be an honesty of statement to which no exception could be taken.

The author, however, is a very curious person who does not seem to be limited by the ordinary laws of either fair dealing or truthful statement.

Moreover, he would be a very poor lawyer. Most of the evidence cited by him is derived from published reports by certain medical men. Having, therefore, chosen his witnesses, and put them on the stand, he would not be allowed in any court of law to discredit his own witnesses by selecting part of their testimony as trustworthy and rejecting part as unworthy of credence. And, yet, throughout this "review," while the anonymous author is eager to accept the statements of the various authorities as to what they did, he declines to admit their statements as to their results, or else misstates them, going so far as to assert that the statements of the physicians cited, concerning the recovery of their patients are "utterly valueless."

In my reply to Mr. Brown, I used the following language: "Let me again state clearly the question at issue. *It is not whether the experiments meet with my approval*, but solely whether the reports of them in the pamphlet issued by the American Humane Association are reliable and accurate both as to their sources and substance." At the Hearing before the Senate committee, I distinctly twice over expressed *my utter disapproval* of many of the experiments referred to in the original pamphlet (No. 2). This condemnation is quoted both on page 1 and page 5 of the anonymous "review"; yet, in spite of these two statements and the third in my letter to Mr. Brown, just quoted, the author represents me throughout his "review" as the apologizer and the advocate of such experiments, thus publishing, yet at the same time wilfully ignoring my repeated statements to the contrary.

In my letter to Mr. Brown, in support of my accusation that many of the references in the pamphlet on "Human Vivisection" are "vague and indefinite," I cited fourteen instances of quotations from newspapers, five of which were without date, and I added six other instances of "vague and indefinite" references not to newspapers. I commented upon the unreliability of newspapers as a source of authority in medical matters.

Let us see how the anonymous reviewer attempts to meet this issue. The facts he does not and can not deny. In the first place he claims that I have changed the issue from "the question of "vague and indefinite quotation" to that of vague and indefinite *references*. When I stated at the Senate Hearing (stenographer's report): "Many of them are so vague and indefinite that I could not look them up," it must have been clear to anyone of common sense that I referred to the references to the experiments, and there was no misunderstanding on this point in the letter of Mr. Brown, who asks: "To what other of the references above given did you refer when you informed the Senate Committee that "*many of them were so vague and indefinite that I could not look them up?*" I was challenged by Mr. Brown to adduce examples of "vague and indefinite references," and this challenge I successfully met.

On page 22, the anonymous reviewer says: "Of the fourteen journals referred to, *every one* conveying a statement of fact—save one—had its name and date of publication plainly given." Here it will be observed that a distinction is drawn between references to articles "conveying a statement of fact," and those which do not relate to statements of fact. My indictment against the pamphlet on "Human Vivisection" (No. 2) was and is that many of the references are so "vague and indefinite" that the original sources of alleged quotations can not be consulted, and that some of the reports are "garbled and inaccurate." It may be just as important to determine the accuracy of a reference to an expression of an opinion as to learn the facts upon which the opinion is supposed to be based, and to charge me with an evasion of the issue because I did not restrict myself solely to one particular class of references, but pointed out the vague and indefinite character of all classes of references in the pamphlet, is too absurd to require further comment.

As a matter of fact, as pointed out in my letter to Mr. Brown, there are no less than five citations or reports of experiments in pamphlet No. 2 for which either no reference whatever is given, or the one inserted is wrong or so vague and indefinite that the original can not be consulted.

On page 9, the anonymous reviewer says: "It was pointed out by the president of the American Humane Association that, with one exception, every phase of experimentation specifically mentioned had some reference to a medical authority." It is incredible that the reviewer should not have known the falsity of the statement attributed by him to the president of the American Humane Association, or he may think that in this strangely worded sentence he has constructed some loophole of escape through such avenues as may be afforded by throwing the responsibility for a false statement upon another, or by such equivocal phrases as "every phase of experimentation," "specifically mentioned," "some reference." There are in fact in the pamphlet of the American Humane Association seven instances in which reference to a medical authority for the experiments mentioned is lacking, and in addition the sole authority for an important part of the statements regarding Sanarelli's experiments are the correspondent of a daily newspaper and a speaker at a convention of the American Humane Association.

Let us see how the reviewer tries to meet my demonstration of numerous instances of "garbled and inaccurate" quotations in pamphlet No. 2. Here again the facts can not be denied, but an attempt is made to minimize their importance.

1. "Brevity of quotation is often absolutely necessary" ("review" p. 9). Why, then, as I pointed out in my letter, are whole sentences added, which do not appear at all in the original?

2. Errors are described in the "review" as a "translator's exaggeration" (p. 6), "blunders of a copyist" (p. 6), "errors

of a translator" (p. 7). So, then, it is now conceded that the pamphlet does contain "exaggerations," "blunders," and "errors." It contains not merely "errors of a translator," but deliberate falsification and misrepresentations. When a translator says what the author did *not* say; when the word "collapse" is translated "final collapse" and an oration is made upon the death of patients who did not die; when the American Humane Association in reference to these very cases quotes on the cover of its pamphlet "Is scientific murder a pardonable crime?" in spite of the published fact that the patients referred to did not die; when the translator again and again interpolates words, phrases and sentences which do not exist in the original; when essential phrases and paragraphs are omitted, these I submit are not the mere "errors of a translator" but deliberate misrepresentations. Instances of all of these I furnished Mr. Brown in reply to his challenge.

The pamphlet, moreover, contains, as I have pointed out, false or misleading quotations which could not be attributed to "errors of a translator" as they were from English sources. One can only hope that hereafter the "translators" and "copyists" employed by the antivivisectionists may be more accurate, or rather that the men and women back of these poor employes may be willing not to distort and suppress the truth in order to effect their purpose. It is a safe rule, I find, not to believe any statement of an antivivisectionist until its accuracy is established by reference to the original source from which the alleged statement or quotation is derived.

3. My charge of garbling and inaccuracy of quotation is practically admitted, but the reviewer states (p. 15): "For none of them [the translations] was the American Humane Association responsible in any way whatever." It is now rather late in the day to advance this disclaimer, after the insertion on the inside of the cover of the pamphlet of the sentence: "The facts are indisputable," and in the preface over the signature of the president and secretary of the Association; "In each case, the authority is given." It is a favorite trick of antivivisectionists to attempt to throw off in this way responsibility, when confronted with incontrovertible evidence of false statements, as is illustrated in the controversy between Miss Cobbe and Mr. Horsley.

I shall be curious to see the fourth edition of this pamphlet. For it I now furnish one more instance of false statement, the evidence of which was not in my possession last January. Even Mr. Brown admits that to this "the reference may, perhaps, be called indefinite." I submit that "perhaps" it may, for no book, journal or any other publication was named. The instance I refer to is Jansen's lecture purporting to be quoted on page 26 of pamphlet No. 2. The lecture was published in a well-known journal, the *Centralblatt f. Bakteriologie u. Parasitenkunde*, 1891, Vol. x, p. 40. So gross is the falsification that the reference was "perhaps" wisely omitted. The first phrase of the quotation is as follows: "When I began my experiments with smallpox pus, etc." This is an absolute untruth. What Jansen used was not smallpox pus at all, but sterilized, diluted vaccine lymph, and sterilized blood serum from vaccinated calves, which could do no more harm than injecting so much water. The entire extract is inaccurate as a translation. There can be no question but that the substitution in this alleged quotation of "smallpox pus" for "sterilized vaccine lymph" can not be attributed to the mere "error of a translator," but is a deliberate falsification, and this in a pamphlet introduced with the statement to the reader: "The facts are indisputable"!

Much has been made of my statement that I could only find in the pamphlet references to "two experiments" in America. My reason for this statement was very simple and perfectly evident to any honest-minded reader.

In the pamphlet "Human Vivisection" (No. 2) there are a number of experiments related, the numbered ones beginning with the following on page 4: "1. Vivisection Experiments upon the Insane." Under this title several experiments, all of the same nature and by the same individual, are reported, eight being referred to in all. On page 5, appears "2. Vivisection of Children in Boston," and under this a number of experiments, all by the same person, are referred to. Anybody with common sense would see that when I referred to "two" instances, I did not mean two individual experiments, but using the classification of the pamphlet, I referred to Nos. "1" and "2" on pages 4 and 5. In fact I specifically referred to these pages and mentioned various experiments under each caption.

I presume, however, that it is useless to expect fairness from an ambushed enemy.

The anonymous "reviewer's" suggestion that as I was President of the American Medical Association last year therefore I am responsible for every paper read before that body—when there were hundreds of papers read in over a dozen Sections before several thousand members—is so amusing that I pass it by with a smile at the author's simplicity.

One sentence of my letter I wrote perhaps better than I knew. In the account of Sanarelli's experiments a certain sentence, "I have seen unrolled before my eyes, etc." was quoted by "A. Tracy" in the original paper (No. 1). In that pamphlet two references were given, one to the *British Medical Journal*, the other to the *New England Medical Monthly*. I stated that this entire sentence occurred in neither of these journals and I added: "Whether it is quoted from some *other source not indicated* or has been deliberately added, I leave you or A. Tracy to explain." The "reviewer" explains that this quotation *was* from another source not indicated (surely this was "vague and indefinite"), namely, Sanarelli's original Italian paper, though no reference was made to it.

Inasmuch as in my letter to Mr. Brown I gave the reference to Sanarelli's original paper the anonymous author of the "review" pays me the compliment of supposing that I am a facile Italian scholar, and therefore, that I was perfectly aware that Sanarelli himself wrote this sentence. "With the volume in his hands, the original article open before his eyes," says the "reviewer," "would he have us believe that he did not take the trouble to compare and verify the only quotation from it which appears in the pamphlet? He did not see it? Credat Judæus Apella! There are limitations to credulity. But how queer must be that sense of honor which would permit a man to make a disgraceful imputation knowing all the while that every word of it was false!"

The simple facts of the case are these. Unfortunately I am not an Italian scholar, and have never even seen Sanarelli's original article. In order to find out the *real* facts, I wrote to a friend who reads Italian well, to learn whether these five patients really died, as the American Humane Association pamphlet (No. 2) asserted. He replied giving me the original reference, and stated that not one of them died.

As the "reviewer" points out that this quotation by "A. Tracy" was from Sanarelli's original paper, a very interesting enquiry arises, viz., if "A. Tracy" in Senate document No. 78, as is now claimed, quoted from this original paper of Sanarelli, it is in order for him now to explain how it is when Sanarelli's original paper states that all of these patients recovered he states that some, if not all of them *died*, and how he dares to quote nearly a page of oratory about "scientific murder" and "assassination," based upon this false statement.

On page 26 of the anonymous "review" the author disputes the value of tuberculin as a test for incipient consumption in children. Were it worth my while I could give him references to disprove this statement, but in view of his amazing ignorance of modern medical progress as evinced by the next statement, I do not propose to take the trouble. He says "Dr. Keen knows perfectly well, in the first place, *that phthisis, however early discovered, is not in all probability a curable ailment.*" Has he never made a postmortem examination and found a cured phthisis? Has he never visited, or even read of, the Adirondacks, or Denver, or Colorado Springs, or Minnesota, or Arizona, or New Mexico, or a score of other such places? Has he never read of the many books and pamphlets on sanatoria for consumptives? Does he know nothing of these modern movements? Koch's discovery of the bacillus of tuberculosis by experiment upon animals in 1882 has done more to help in curing consumption and other forms of tuberculosis than any other one means and especially by its early recognition. If he will

consult the recent Prize Essay on "Tuberculosis as a Disease of the Masses and how to Combat it," by Dr. S. A. Knopf of New York he will be made aware of the facts. This essay was awarded the prize by the International Tuberculosis Congress last year in Berlin in a competition in which 85 prize essays were presented from all over the world.

When I see the statement that phthisis is not curable even when discovered at an early stage, put forth seriously by my anonymous reviewer, I throw down the pamphlet in despair. One can not argue further with such dense ignorance. It is equal only to the assertion of another medical light among the antivivisectionists, that brain tumors can not be located outside the motor area.

W. W. KEEN, M.D.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment will be answered in these columns.]

Typhoid Fever.

MANAGEMENT AND TREATMENT.

Dr. Frank Billings emphasizes the advantages of hygienic over drug treatment. The room should be properly selected for its conveniences and freedom from all unnecessary draperies and furniture. Thorough cleanliness is necessary. All soiled garments and linen should be disinfected in a solution of corrosive sublimate (1 in 1000). The skin of the patient may be sponged with the same. Competent nursing will prevent dry parched lips, foul tongue, sordes and decubitus. Milk is the best diet. Animal broths should not be used alone as a food, nor given when diarrhea is present. When patients are suffering from nausea, vomiting, poor digestion, constipation or diarrhea, milk constitutes the ideal diet. Drug treatment will not lessen mortality. Emergencies, however, must be met as they arise. The Brand bath is of great merit because of its increasing to such a degree the elimination of the toxins. The bath is indicated when the temperature reaches 102.2. The temperature of the bath should be about 68° F. and the duration about fifteen minutes, with good friction. This is to be repeated every three hours if the temperature reach 102.2 again. The antipyretics are harmful, because they do not prevent the formation of toxins but do diminish their elimination. Treat the delirium, heart failure and bronchitis with drugs if necessary. Constipation requires enemata and laxatives.

Tyson, of Philadelphia, states that milk is the safest and by far the most satisfactory diet, for the reasons that it is a properly constituted diet of proteids, fats, sugars, minerals and water, which demands modification as to proportion by reason of age, occupation and climate. As to the quantity required, it may be for adults 4 ounces as a minimum, to 8 ounces as a maximum every two hours. If diarrhea is present he instructs the milk to be boiled or peptonized. A deviation from the milk diet must be made in some cases because of its disagreement with the patient or because of some prejudice against it. In his experience such patients are seldom found. A second consideration is that milk sometimes increases the tendency to constipation. In such cases the milk should not be boiled. This condition may be further counteracted by the addition of buttermilk. He believes that there is but little danger in substituting the meat broths as far as their favoring the multiplication of bacteria in the intestines is concerned. He states that such preparations should be made by the use of heat and thus should be sterile at the outset and consequently should not be any more of a culture medium when introduced into the bowel than other articles of diet permitted in typhoid fever. He says in case milk cannot be assimilated after reducing the quantity to the minimum amount, that there is no more satisfactory nourishment than albumin water. The whites of two eggs to a pint of cold water is an average proportion, to which a teaspoonful of lemon juice may be added as a flavor. As to the diet in the convalescent stage, he always adheres to one rule, namely: Adhere to the liquid diet until the temperature has been normal one week, then allow one soft boiled egg daily and after a few days other articles may be added, such as well-boiled rice or well-cooked oatmeal, two or three raw oysters, etc.

Dabney, in *Virg. Med. Month.*, observes the following points in the treatment of typhoid fever: Clean the intestines with a mild cathartic. Stimulate the vasomotor system by the regular application of cold water with constant friction. Colonic flushings should be given when necessary. The patient should be allowed an abundance of cold water. Clean bedclothing, sunlight and air are demanded. Give a readily assimilable diet at long intervals. Watch very carefully for complications by studying carefully the pulse and temperature. Never give a remedy that tends to increase vasomotor paresis. The coal-tar products especially are to be avoided. [The nitrites produce marked dilatation of the peripheral vessels, producing a paresis of the same.] Avoid, he states also, all stimulants as a routine practice, such as alcohol, strychnin, nitroglycerin and ammonia. The use of digitalis he regards as unphysiologic and at times positively dangerous in this disease.

William Osler, as noted in *Phil. Med. Jour.*, states that the treatment of typhoid fever should consist in: 1. A careful and thorough nursing to which as much as to any other single feature is attributed the low rate of mortality. 2. The diet should consist of milk with lime-water and egg albumin during the febrile stage. Rarely should artificial foods be ordered, but an abundance of cold water. 3. Hydrotherapy, either the full tub at 70 F. or, if occasion requires, ice cold sponges. 4. No drugs should be given unless the pulse becomes rapid and feeble; alcohol in the form of good whisky should be given and strychnin in full doses if necessary. No antipyretics and no intestinal disinfectants are necessary. Special complications require special treatment.

TO DISINFECT THE URINE AND FECES.

The importance of disinfecting the urine is now universally recommended, as the presence of the typhoid bacillus has been demonstrated in 40 per cent. of the cases at some stage of the disease. Any of the chemical disinfectants may be used to produce disinfection of the urine and stools of the patient. Carbolic acid is probably the best by making a 5 per cent. solution, and using one part of this solution to two or three parts of urine. The bed-pan and urinal should be partly filled with an antiseptic solution constantly.

The following may be of service as an intestinal antiseptic and to relieve tympanites:

℞.	Beta naphthol ..... gr. xl	2	66
	Salol ..... gr. xxx	2	
	Pulv. arom. ..... gr. xv	1	

M. Ft. chart. No. xii. Sig.: One powder every four hours.

The following may be administered as a heart tonic:

℞.	Caffeinæ citratis ..... gr. viiss		05
	Tinct. strophanthi ..... ℥i	4	
	Aq. q. s. ad ..... ℥ii	64	

M. Sig.: Shake; one teaspoonful every four hours.

F. C. Keays, in *Med. Record*, employs the tub bath as a routine treatment, given every three hours when the temperature is 103 or over. The bath is usually started at 80 F. and run down to 70 or 65 for a period of ten or fifteen minutes. As a substitute in some cases, alcohol sponge baths are used, the alcohol being cooled by ice. The baths generally prevent delirium. Whisky is very efficacious in alcoholic patients. Hypnotics may be given per rectum in delirious patients. Nausea and vomiting are relieved by milk modified with the following:

℞.	Cerii oxalatis ..... gr. v		33
	Sodii bicarb. ..... gr. x		66

M. Ft. chart. No. i. Sig.: Add to eight ounces of milk.

Tympanites may be treated by turpentine stupes, rectal tube and turpentine by the mouth, five to ten minims. If hemorrhage occurs, the patient should be kept quiet, cold ice coil applied to the abdomen and saline enemata or saline infusions should be given to replace the blood lost by hemorrhage.

To relieve the tympanites, Hare recommends an enema of soap and water, and if a more active carminative is indicated a pint of the milk of asafetida may be used. If this fails to move the bowels, then one or two drams of oil of turpentine may be thoroughly mixed with the asafetida or the soap and water, and used in the form of an injection. The injection should be administered gently with a fountain syringe which should be elevated not more than two feet above the patient.

H. C. Wood emphatically states that turpentine should be administered in every case, commencing about the end of the second week. He states that both laboratory and clinical experience are positive in their concordance in showing that the drug has a specific local action on the typhoid ulcer and the bacillus which it contains.

As an intestinal antiseptic in typhoid fever, the following has been recommended:

℞ Acidi thymici
Guaiacol carbonatis
Saponis (medicinalis) ãã.....3iss 6

M. Ft. pil. No. xxx. Sig.: One pill every four hours.

TREATMENT OF THE DIARRHEA.

Hare states that the diarrhea is not to be interfered with unless the patient has more than three movements a day or unless these movements seem to weaken the patient. Under these circumstances he administers the following:

℞ Acidi sulphurici arom. 3i 4
Ext. hematoxylin. fl. .....℥ss 16
Spts. chloroformi .....℥ss 16
Syr. zingiberis q. s. ad.....℥iii 96

M. Sig.: Two teaspoonfuls every two to four hours.

If the diarrhea is very marked and the patient is weak, he adds spirits of camphor to the above mixture, and small doses of morphin if insomnia is present.

Some of the bismuth preparations act very efficiently in combination with other intestinal astringents, as follows:

℞ Bismuthi subnitratis 3ii 8
Tannalbin 3ii 8

M. Ft. chart. No. xii. Sig.: One powder every two or three hours.

Or, as stated in Merck's Archives:

℞ Morphinæ sulph. .....gr. ii 1
Bismuthi phos. (soluble) 3iss 6
Tinct. krameriæ 3iv 16
Syr. tolutani .....℥i 32
Aq. destil. q. s. ad .....℥vi 192

M. Sig.: One dessertspoonful every three hours.

In the diarrhea of typhoid fever Yeo recommends the following to be given in the form of an enema:

℞ Pulv. opii et ipecac. .....gr. v 33
Acidi tannici .....gr. x 66
Pulv. acaciæ .....℥i 32

M. Sig.: Mix this with two ounces of warm water and inject after each movement of the bowels.

And internally the following:

℞ Bismuthi salicyl.
Bismuthi carb. ãã.....gr. xl 2 66
Pulv. acaciæ 3ii 8
Aq. q. s. ad .....℥ii 64

M. Sig.: A dessertspoonful every three hours until the diarrhea is relieved.

In case of hemorrhage use the above enema, increasing the Dover's powder to ten grains. The object is to arrest all intestinal movement and keep the intestine at absolute rest. At the same time give the following by the mouth:

℞ Acidi gallici .....gr. lx 4
Spts. vini rectif .....℥i 32

Dissolve and add:

Acidi sulph. arom. 3i 4
Liq. opii sedativi. .....m. xv 1
Aq. cinnamomi q. s. ad .....℥vi 192

Fiat mist. Sig.: Take two tablespoonfuls every hour for six doses, and then every three hours.

Medicolegal.

Determining Compensation for Pain and Suffering.—It is impossible, the Supreme Court of Kansas says, in the case of James vs. Hayes, to fix any rule by which damages compensating for pain and suffering can be estimated, or for ascertaining what will exactly repay for permanent injury. It is not possible, in the nature of things, to accurately estimate the money value of pain. It can not be said that so many hours or days of suffering of such intensity shall be estimated at so many dollars; neither can it be estimated with any close accuracy the permanent damage that may come to one from a serious injury. The amount to be awarded must be left to the enlightened consideration of the jury, under all the evidence; and a verdict therefore will not be set aside unless the court can say that the amount thereof is so excessive as to indicate passion or prejudice on the part of the jury.

As to Christian Scientists Reporting Diseases.—The case of the City of Kansas City vs. Baird, which has been somewhat summarily disposed of by the Supreme Court of Missouri, Division No. 2, so far as it is concerned, was an action for the violation of a city ordinance by a "christian scientist," who was in the habit of receiving compensation for attending cases of sickness, and who failed to report a case of diphtheria. The ordinance in question provides that "every physician who shall prescribe for or treat any case of * * * diphtheria * * * shall immediately, on receiving knowledge that the person or persons are afflicted with any of said diseases, report the same to the board of health; and any physician who shall fail, neglect, or refuse to so report," etc., "shall be deemed guilty of a misdemeanor, and on conviction fined not more than $50." The petition charged that Mrs. Baird did "unlawfully fail, neglect, and refuse to report to the board of health of said city a certain case of diphtheria of which she had knowledge, which said case of diphtheria the said Amanda J. Baird, physician, attended and treated in professional capacity, and had knowledge that said patient was afflicted with diphtheria." She pleaded not guilty, was tried, and fined $50. Then she appealed to the above court, but it holds that the appeal was improperly taken to it, and has ordered the record transferred to the Kansas City Court of Appeals. The reason for this is that it holds that there was no constitutional question involved in this case. It is true, it says, that in her motion for a new trial she stated that the judgment was in violation of section 5, article 2, of the constitution of the State of Missouri, which contains a guaranty of religious freedom, but, the court declares, she might as well have named any other provision of the organic law, as it is evident that her constitutional right of religious freedom was in no sense involved in this action.

Medical Examiner's Knowledge—Serious Illness.—The United States Circuit Court holds, in Caruthers vs. Kansas Mutual Life Insurance Company, that there is a distinction to be made between certain cases where the agent was authorized to issue the policy and his knowledge was imputed to the company, and one where a medical examiner is only authorized to reduce the applicant's answers to writing, and the company issues the policy at its home office, in reliance upon the written warranty of the assured that the answers are full, true, and complete, and correctly recorded. In such case, the knowledge of the medical examiner at the time the application is made, it holds, can not affect the company, especially when a copy of the application, with the answers, is attached to the policy when delivered to the assured. The doctrine of estoppel, as it is termed, as laid down by the authorities in actions of this kind, it states, is that, if the assured has truthfully answered the questions propounded to him, and the agent of the company, authorized to ask the questions and write the answers down, putting his own construction upon such facts, deduces therefrom an erroneous answer, which he writes down, or writes a different answer down, the assured is not estopped or precluded by his warranty from showing that he gave true answers; and,

if he establishes that fact, the company is estopped or precluded from questioning the truth of the answers as written down. Hence, the court holds that the mere fact that a medical examiner knows when writing them down that certain answers are false will not of itself create an estoppel in a case where the application has to be forwarded to the home office in another state, and the medical examiner has neither the power to pass upon the question whether the risk be accepted, nor anything to do with the delivery of the policy if issued. The word "serious" in a question asked of an applicant as to whether he has ever had any serious illness, constitutional disease, injury, or undergone any surgical operation, the court holds, means a grave, important, and weighty trouble. It does not consider it within the meaning of the question a case where the applicant suffered a fracture of the tibia fibula of one lower limb, the fracture being reduced and the limb placed in splints and bandages, a doctor attending him a week, and he being confined to the house about six weeks, besides which he had chills and fever a couple of days growing out of his confinement to his bed.

Liability for Neglect of Patient During Vacation.—The first appellate division of the Supreme Court of New York says, in the case of Gerken vs. Plimpton, that a physician who undertakes the treatment of a patient is bound to exercise not only the skill required, but also care and attention, in attending his patient until he notifies the patient that his professional relations are terminated. A physician and surgeon engages to bring to the treatment of his patient care, skill, and knowledge; and while, when exercising these, he is not responsible for mere errors in judgment, he is chargeable with knowledge of the probable consequences of an injury, or of neglect in its treatment, or unskilful treatment. And when a physician is employed to attend upon a sick person his employment continues while the sickness lasts, and the relation of physician and patient continues, unless it is put an end to by the assent of the parties, or is revoked by the express dismissal of the physician. Here, a physician and surgeon, whose qualifications as such were conceded, was called in as a surgeon in connection with a physician who was first summoned, who did not consider himself competent to treat a case of the kind, to treat fractured left arm. As a surgeon, the court says, he undoubtedly undertook the case, and in doing so assumed to give it the care and attention required. He put the arm in splints, and directed the patient to carry it in a sling. Thereafter, for about six weeks, he attended the case, and all of the physicians called as witnesses united in saying that the method of treatment adopted till then was proper. Then, however, he went away for a vacation. The bones had not yet united. But when he returned, after five weeks' absence and again examined the arm, he found that the bones had slipped from their position, overlapped, and in this position formed a union. He testified that, prior to his leaving, he told the patient that he was going away on his vacation for two or three weeks, and that, if she desired him to call again, she must send for him. Her testimony was that he stated that he was going away for a vacation, and that he would be back again within ten days or two weeks, and in the meantime directed her to keep her arm in the sling. Under all the circumstances, the court thinks that the jury was justified in finding, if it believed the patient's version of that interview, that the doctor had been negligent in the discharge of his duties which he had assumed in relation to this patient. The jury returned a verdict in her favor for $2000, which was reduced by stipulation to $500 to avoid a new trial being granted by the judge, who considered the amount of the verdict excessive. And whatever may be said of the original verdict of $2000, the appellate division thinks it quite evident that $500 was not excessive, especially when there was evidence tending to show that the only practicable treatment at that time was to fracture the bones where the union had taken place, and then to wire the bones in their proper position, and that the reasonable value for such an operation would be $500, after which the patient would be in the position she was when the doctor left for his vacation, but with no certainty that there would be a union of the bones.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Medical Record (N.Y.), July 27.

1 *Inebriety: A Study of Its Causes, Duration, Prophylaxis, and Management. Charles L. Dana.
2 Primary Resection of the Intestine for Gangrenous Hernia; Report of Two Cases of Successful Joining by Lateral Anastomosis, with the Connell Suture. Thomas H. Manley.
3 *The Use of Sulphate of Copper in Affections of the Cornea and in Affections of the Lid Other That Trachoma. J. Herbert Claiborne.
4 Needed Reforms in the Management of Youthful and Insane Criminals. Wm. G. Somerville.

American Medicine (Philadelphia), July 27.

5 *On the Classification of Intoxications from a Pathologic Standpoint. J. George Adami.
6 *Maternal Impressions Do Not Cause the Stigmata of Degeneration. Chas. E. Woodruff.
7 Two Cases of Emphysematous Gangrene Caused by Bacillus Aerogenes Capsulatus. L. M. Loeb.
8 Cystadenoma of Pancreas; Extirpation. Joseph Ransohoff.
9 Lithemic or Recurrent Coryza. B. K. Rachford.
10 Early Stage of Extrauterine Pregnancy. E. H. Trowbridge.
11 Inflammation of the Sigmoid and Colon. R. D. Mason.
12 *An Address on the Fight Against Tuberculosis in the Light of the Experience Gained in the Successful Combat of Other Infectious Diseases. Robert Koch.

Medical News (N. Y.), July 27.

13 *An Improved Method of Treating High-seated Cancers of the Rectum. Robert F. Weir.
14 A Case of Embolism of One of the Right Lenticulo-optic Arteries Complicating Pneumonia, with Autopsy. Charles J. Aldrich.
15 An Attempted Investigation of Some Christian Science "Cures." Lawrence Irwell.
16 *A Nasal Condition Affecting the Ocular Muscles. Heber N. Hoople.
17 Criminals and Defectives: How Best to Reduce Their Numbers. J. C. McCassey.

New York Medical Journal, July 27.

18 *The Wesley M. Carpenter Lecture on Conjugation in the Asexual Cycle of the Tertian Malarial Parasite. James Ewing.
19 *Some of the Conditions Following the Bottini Operation for Prostatic Obstruction. L. Bolton Bangs.
20 *Mental Disturbances in the Course of Cardiac Disease. A. Zederbaum.
21 The Ophthalmoscopic Examination for Kidney Disease. Edward Jackson.
22 What Is the Best Way of Prescribing Calomel as a Purgative? Adrian Landry.

Boston Medical and Surgical Journal, July 25.

23 *Specialism in Medical Practice: Its Present Status and Tendencies. F. H. Davenport.
24 After-treatment of Operation on Nasal Accessory Sinuses. Walter A. Wells.
25 *Diphtheria as a Complication of Measles. David N. Blakely and E. G. Burrows.
26 *Adhesive Plaster Strapping in Umbilical Hernia. J. C. Hubbard.
27 A Case of Nasal Deformity from a Medial Furrow, Corrected by Subcutaneous Implantation of a Portion of the Septal Cartilage. J. L. Goodale.

Philadelphia Medical Journal, July 27.

28 Atypical and Unusual Varieties of Appendicitis. John B. Deaver.
29 Appendicitis with Thrombosis and Suppuration in the Right Iliac and Femoral Veins. John G. Sheldon.
30 *Gastrointestinal Autointoxication Occurring with Forms of Mucous Colitis in Children. Henry Koplik.
31 Treatment of Infantile Diarrhea. William H. Robey, Jr.
32 Spastic Ileus. Edward Quintard.
33 Report of Cases Examined for the National Jewish Hospital for Consumptives, at Denver, Colo. Saling Simon.

Cincinnati Lancet-Clinic, July 27.

34 Some Reflections upon the Disturbances of the Liver and Alimentary Tract. J. L. Cleveland.
35 Heredity. H. H. Spiers.

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36 *Pessimism in Cancer. G. Wiley Broome.
37 Report of a Case of Placenta Previa Marginalis with Infection of Placenta before Delivery. A. J. Detweiler.

Medical Fortnightly (St. Louis), June 25.

38 Pelvic Peritonitis and Exudates. Byron Robinson.
39 The Surgery of Syphilis. G. Frank Lydston.
40 Diseases of the Stomach. (Continued.) J. M. G. Carter.

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41 The Social Evil. A. L. Benedict.
42 Diseases of the Stomach. (Continued.) J. M. G. Carter.

Northwestern Lancet (Minneapolis), July 15.

43 *Practical Gynecologic Work in Hospitals for the Insane. Dwight S. Moore.
44 Diagnosis and Treatment of Acute Peritonitis. J. W. Bell.
45 Sights and Experiences of a Prairie Doctor. F. W. Maercklein.

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46 Gastrointestinal Autointoxication. W. L. Bierring.
47 A Brief Report of Some Interesting Surgical Cases. William H. Wathen.
48 Diseases of the Upper Respiratory Tract and Ear. B. A. Waddington.

Cleveland Medical Magazine, July.

49 Foods, Food Economics and Food Adulteration. Charles F. Mabery.
50 Cases of Prolonged Fever Not Typhoid. J. Park West.
51 Report of a Case of Tabetic Arthropathy of the Knee-Joint, Occurring in a Case of Paretic Dementia. Walter G. Stern.

Bulletin of Johns Hopkins Hospital (Baltimore), July.

52 A Case of Arterial Disease, Possibly Periarteritis Nodosa. Florence R. Sabin.
53 *Typhoid Infection Without Lesion of the Intestine; A Case of Hemorrhagic Typhoid Fever with Atypical Intestinal Lesions. Eugene L. Opie and V. H. Bassett.
54 *Frequency of Typhoid Bacilli in the Blood. Rufus I. Cole.
55 A Portable Operating Outfit. J. M. T. Finney.
56 *Ulcer of the Stomach Caused by the Diphtheria Bacillus. William R. Stokes.
57 *Ovarian Organotherapy. William Krusen.

Annals of Gynecology and Pediatry (Boston), July.

58 Demonstration of a Model of the Abdominal Viscera at the Annual Meeting of the Massachusetts Medical Society, June 12, 1901. Thomas Dwight.
59 The Diseases of Nutrition in Infants. T. M. Rotch.
60 The Relation of the Medical Editor to Original Communications. Harold N. Moyer.
61 Some Thoughts on the Ethics of Medical Journalism. Burnside Foster.
62 Improvements in Medical Education. Dudley S. Reynolds.

American Gynecological and Obstetrical Journal (N.Y.), July.

63 *The Relative Merits of Bipolar Version with Slow Extraction and Accouchement Force in the Treatment of Placenta Previa: Report of Fourteen Cases. Henry D. Fry.
64 *The Status of Hysterectomy for Uterine Cancer. Cyrus A. Kirkley.
65 *Some Observations on Cases of Tuberculosis of the Kidney Treated Surgically. Beverly MacMonagle.
66 *The Status of Menstruation or What Is Menstruation? Eugene C. Gehrung.
67 *Painful Menstruation as a Factor in Determining the Character of Operations on the Uterine Appendages. Philander A. Harris.
68 *Prolapse and Procidentia of the Uterus. Henry T. Byford.
69 *Ridges, Furrows and Prominences on the Imparous Uterus. Robert L. Dickinson.

Canadian Practitioner and News (Toronto), July.

70 The Roentgen Rays in the Diagnosis of Urinary and Biliary Calculi. S. Cummings.
71 A Report of Three Cases of Diabetes Mellitus. Geo. Hodge.
72 The Reduction of Turbinal Hypertrophies. D. J. Gibb Wishart.

University of Pennsylvania Medical Bulletin (Philadelphia), July.

73 Memoir of William Pepper. James Tyson.
74 *A Report of the Nasal Septum as Found in the Skulls of Forty Mound-Builders. George B. Wood.
75 Report of the More Interesting Obstetric Operations and Cases in the University Maternity from September to January, 1900. A. H. Remington.
76 *A Statistical Digest of Epithelioma of the Penis. Francis D. Patterson.
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78 Treatment of Typhoid Fever. W. W. Reed.
79 Notes on New York Surgery. W. W. Grant.
80 How to Conduct a Case of Labor, Normal or Emergent. W. W. Woodring.
81 Historical Sketch of the Plagues of the World. Clarence L. Wheaton.

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82 The Career of Medicine: A Glorious Heritage of Golden Opportunity. Frank T. Lodge.
83 *Hysteria. George F. Butler.
84 *The Treatment of Acute Rheumatism. George Dock.
85 Tuberculosis of the Larynx. Preston M. Hickey.
86 Surgical Treatment of Cirrhosis of the Liver. Hal C. Wyman.
87 Recent Experience with Smallpox. (Continued.) Theodore Schmalzriedt.

Merck's Archives (N. Y.), July.

88 Some Ancient Therapeutics. Albert Schneider.
89 The Treatment of Rheumatism with Acetyl-salicylic Acid (Aspirin). C. A. Protin.
90 Treatment of Typhoid Fever. Virginius W. Gayle.
91 An Essay on Opium and Its Alkaloid Morphin, and Their True Value in Modern Therapeutics. (Continued.) Adolfo Luria.

Western Medical Review (Lincoln, Neb.), July 15.

92 *Address to the Graduating Class of the John A. Creighton Medical College. W. O. Henry.
93 Therapeutic Orthodoxy W. B. Ely.
94 Cerebral Cyst—Further Report of a Case. Van Buren Knott.
95 *Pernicious Anemia, with Report of a Case. Leroy Crummer.
96 The Office Treatment of Rectal Diseases. R. D. Mason.
97 Medical Colleges and Professional Standards. Inez C. Philbrick.
98 *The Operative Management of Retro-peritoneal Abscess of Appendicular Origin. Gilbert G. Cottam.
99 *Surgical and Pathological Observations in Epityphlitic Abscess. Augustus C. Bernays.

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100 Present and Former Use of Alcoholic Stimulants George W. Wells.
101 A Case of Cardiopulmonary Murmur Illustrating the Importance of Differentiation. P. Maxwell Foshay.
102 Occupation as Affecting the Death-Rate. J. E. Cowgill.
103 What Are the Consequences of Gonorrhea or Its Treatment in the Male or Female, Which Will Affect the Eligibility of an Applicant for Insurance? Frederick W. Main.
104 Collargolum and Unguentum Crede. Arthur De Voe.
105 Should the Fact that an Applicant Has Had Dropsy Necessarily Debar Him from Insurance? John L. Dickey.

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106 *The Present Status of the Teaching of Orthopedic Surgery in the United States. Harry M. Sherman.
107 *Chromic Acid as a Caustic in the Treatment of Epithelioma of the Skin. Douglass W. Montgomery.
108 A Case of Cesarean Section. Charles R. Harry.
109 Heroin, the Newer Silver Salts, the Intestinal Antiseptics. George F. Hanson.
110 The Treatment of Immature Cataract, with Report of Two Cases. Albert B. McKee.
111 Aural Gymnastics. M. W. Frederick.

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112 The Growth of State Medicine—A Brief Outline. Franklin Staples.
113 More About "The Life Needlessly Sacrificed." D. A. Robinson.

Ophthalmic Record (Chicago), July.

114 Case Resembling Septic Meningitis and One of Septic Thrombosis of Cavernous Sinus, with Exophthalmus and Orbital Cellulitis. Death. Don M. Campbell.
115 A Case of Blindness from Drinking Cologne Spirits (Methyl Alcohol). H. Gifford.
116 Rupture of the Iris from Contusion of the Eyeball. William M. Sweet.
117 The Operation of Couching Performed by a Mule. Lewis H. Taylor.
118 A Case of Conjunctival Tuberculosis, with Peculiar Onset, Ending in Spontaneous Healing—Report of a Case from the University Eye Hospital, Rostock, Germany. A. Levy.
119 *The Controversy About the Dioptric Value of the Cornea. Carl Weiland
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121 Report of a Unique Case of Dermatitis Herpetiformis Pustulosa, with Its Histopathology. Wm. P. Loth.
122 Address before the American Dermatological Association at the Meeting in Chicago, June, 1901. Francis J. Shepherd.

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123 Adenoid Growths in the Nasopharyngeal Space. Charles D. Thomas.

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124 Report of a Few Extraordinary Cases, with Exhibition of Specimens. A. L. Fulton.
125 *A New Method of Controlling Morphin Sickness, and the Nausea Incident to Chloroform Anesthesia. E. Kuder.

The Canada Lancet (Toronto), July.

126 President's Address, Ontario Medical Association. Angus Mackinnon.
127 A Case of Laryngeal Stenosis from Papillomata. Geoffrey Boyd.
128 Sealing in the North Atlantic. John Macwillie

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129 Puerperal Infection. S. S. Crockett.

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130 *Tropical Diseases and Tropical Remedies. T. P. Porter.
131 Desire First—Diet Afterwards. C. B. Stockwell.
132 Trachoma: Treatment by Salicylic Acid. W. F. Strangways.

Alabama Medical Journal (Birmingham), July.

133 Foreign Bodies in the External Auditory Canal. L. G. Woodson.
134 Malaria. E. O. Williamson.

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135 *Simple Methods in Pelvic Surgery. John B. Deaver.
136 Gonorrhea and Its Treatment from the Present Standpoint. Henry J. Scherck.

Georgia Journal of Medicine and Surgery (Savannah), July.

137 Some Observations in a Series of Fifty Cases of Malaria. E. E. Murphy.
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AMERICAN.

1. **Inebriety.**—In this article Dana analyzes some hundreds of cases of inebriety observed by him during the years 1891 to 1895. He finds that drinking habits in the parents are very general, but that, as the patients generally come from a class where such are common and as environment is favorable to their acquiring the habit, the stress on heredity is not important. Among 30 periodical inebriates, in 20 there was a distinct history of heredity: in 14 the father drank, and in 8 both parents drank. He thinks that drinking is largely a matter of habit and environment. The greater proportion of drunkards is furnished from amongst small tradesmen, mechanics, artisans, though laborers furnish a notable percentage. About two-thirds were males. In the majority of the cases the habit was commenced early; after 30 the danger is less. The average duration of a drunkard's life is about 15 years. The liquors used were mainly beer and whiskey and he sees no safety from alcoholism in the much lauded malt liquors, though among wine drinkers there was a marked absence of alcoholism. He is inclined to think that alcoholism weeds out the degenerate and in this way helps the state; he therefore thinks it has some beneficial effects. He holds, however, that it is always a poison when used in excess, and that when used in moderation, it is equally pernicious to a large class of human beings. The methods of prevention he suggests are the control of the sale, making it difficult to secure drinks, and the avoidance of the transmission of degeneracy by the marriage of alcoholics, together with public instruction. As regards treatment, he has comparatively little faith in the popular cures, though in the hands of a skilled physician they may be the best for the patient. He gives his prescription of tincture of nux vomica, tincture of capsicum, and tincture of cinchona rubra, advises thorough feeding, baths, etc., but does not speak very hopefully of any treatment of the habitual inebriate.

3. **Sulphate of Copper.**—After reporting a number of cases of eye affections other than trachoma treated by the use of solid-stick sulphate of copper, Claiborne sums up the use of this agent as follows: 1. In all acute attacks of inflammation of the cornea in which there is thickening with a succulent, velvety appearance of the upper lid. 2. In all recurrent attacks of superficial keratitis in which the same condition of the upper lid prevails. 3. In infiltrations of the cornea which are the result of preceding inflammations, associated with the same condition of the upper lid. 4. In maculæ of the cornea in children and adults which have occurred a reasonable time after an inflammation, whether the upper lid presents the characteristic appearance or not. 5. In chronic conjunctivitis attended by thickening of the lid associated with blepharitis. 6. In chronic dacryocystitis (particularly in those cases in which the canaliculus has been slit) attended by chronic conjunctivitis.

5. **Auto-Intoxications.**—The ordinary classification of intoxications in medicine is criticised by Adami, who calls attention to the fact, as it appears to him, that intestinal intoxications are exogenous as well as those on the external surface of the body. An auto-intoxication is an intoxication set up by the action of substances formed by or from the cells of the body; that is to say, either by the secretion of these cells or by the products of their disintegration. Such auto-intoxication is endogenous when the poison so formed acts without any preliminary passage out of the system. It is exogenous when it is due to resorption of the secretion, as, for example, when the obstruction of a duct is followed by reabsorption of the excretion. He thus classifies the intoxications in general: I. Exogenous, due to the actions of poisons entering the system from without. 1. Exotic or introduced; due to action of substances foreign to the organism, which gain entrance through the skin, digestive, respiratory or genito-urinary tract. 2. Indigenous or excretory. (*a*) Indirect auto-intoxication, due to absorption of retained excreta. (*b*) Disintegrative, due to absorption of decomposition and fermentation products developed in the external secretions through the action of these secretions. II. Endogenous. 1. Direct auto-intoxication. (*a*) Internal secretory, due to the action of excessive or unneutralized or modified discharges from the cells of one or other tissues acting directly upon the other tissues or body without previous discharge from the system. (*b*) Disintegrative, due to action of the products of decomposition and necrosis of one or other tissues acting in a similar manner. 2. Parasitic. (*a*) Microparasitic, the infections. (*b*) Macroparasitic.

6. **Maternal Impressions.**—Woodruff discusses the subjects of maternal impressions and endeavors to show the absurdity of the belief in their existence.

12.—See THE JOURNAL of July 27, p. 259.

13. **Cancer of the Rectum.**—The objections to Kraske's operation are first discussed by Weir, who mentions his attempting to follow the method in extirpation of high rectal cancer after the plan of Maunsell, whose method consists in opening the abdomen above the pubes, separating the peritoneum from the bowel extensively and passing a loop of tape by a long mattress needle from the opened pelvis through the rectum and out the previously enlarged anus. In this way he proposed to loosen the neoplasm, excising it and suturing the two parts of the bowel together. This plan did not work satisfactorily and Weir changed his procedure as follows: The fingers had freely detached the divided peritoneum so that the bowel and the entire contents of the sacral curve were liberated behind nearly to the tip of the coccyx and in front to the edge of the prostate. This gave room to tie around the bowel some three inches from the anus a couple of iodoform tapes about an inch apart. The intestine was then cut through and being free was readily raised out of the abdominal wound and held aside by an assistant. The lower end of the rectum was then seized by forceps in the hands of an assistant who drew it down and out of the anus in an everted condition. Untying the tape that closed this everted bowel, its lumen was opened so that a long pair of forceps could be carried through it up into the pelvis, when the end of the upper bowel was brought down within its clasp and by it the latter was drawn through the lower bowel out into the world. A couple of needles passed through the invaginated ends of the bowels, near their margins, allowed easy union by sutures of their edges with their knots inside the bowel and replacement of the same then was done. After the peritoneum had been sewed together and to the bowel, so that the pelvis and general abdominal cavity had been separated from one another by the peritoneal shelf, he deemed it best to provide drainage from the peri-intestinal space below by a tube introduced from just in front of the coccyx.

16. **Intra-Nasal Pressure and Asthenopia.**—The proposition advanced by Hoople is that mechanical pressure in a limited nasal area, called by MacKenzie the reflex area and confined chiefly to the middle turbinate, may produce muscular asthenopia. He quotes a number of authorities who have supported this view and reports observations confirming it. He thinks that we have ground for postulating the following: A moderate amount of pressure or mechanical irritation of the middle turbinate and adjacent septum will temporarily impair the

function of the ciliary muscle. The pressure is such as is produced by a spur or bend in the septum when it digs into a too-closely applied middle turbinate. The asthenopic disturbance in this particular class of cases and probably in all cases he thinks is from sympathetic fibers.

18. **The Malarial Parasite.**—In the Wesley Carpenter lecture Ewing discusses the life cycle of the tertian malarial parasite and notes the significance of the conjugation phenomena. He says: "The malarial parasite may be said to begin its existence in the human host, by a series of generations of ameboid bodies produced after conjugation of partially differentiated individuals. After the capacities of this method of reproduction have been exhausted, the sexes become separated, the male forms being represented by the flagellating bodies, microgametocytes, and the female by the large, pale, hyaline, non-flagellating bodies—macrogametocytes. These forms are sterile for the human host, but in the mosquito fertilization of the macrogametocyte by the flagellum or microgamete takes place, and the resulting motile form, the vermiculus, penetrates the tissues of the mosquito and becomes encysted. From this cyst develop the germinal rods which are inoculated into the human host through the salivary glands of the mosquito, to begin anew the pyrogenous or ameboid cycle. At several points in the series there remain wide gaps in our knowledge. We do not yet know how the germinal rods are transformed into ameboid bodies. The development of the sexual forms of the tertian parasite, as described by the writer, can at present only be offered as a probability, not as a demonstrated fact, while the origin of estivo-autumnal crescents is as yet entirely obscure. At the other end of the series there is possibly an entire new phase of development of the parasite or the production of some "resistant body" in the external world apart from either man or mosquito.

19. **Bottini Operation.**—The after-conditions of the Bottini operation are noticed by Bangs, who claims that the process of repair begins immediately after the operation, and he publishes and illustrates the appearance in a case of successful operation where the patient died some time later of pneumonia, showing the conditions found. He thinks that the spontaneous urination that follows the operation is due not only to the formation of grooves, but to contraction of the cicatrices and atrophy of the gland tissue, and gives his reasons for this belief.

20. **Cardiac Disease and Insanity.**—After the causes of certain cases of insanity associated with cardiac disease and especially puerperal insanity, which he thinks has some relation with cardiac disease, are discussed by Zederbaum, he concludes that the heart in a number of women during the puerperium and insanity is subject to hypertrophy, which may become permanent and pathologically affect the valves, and that latent cardiac disease of rheumatic and other origin may first come to the front during pregnancy or even after labor. Puerperal insanity, where a diseased condition of the heart is certainly known to exist, has not been, thus far, as he has learned from the literature, specially correlated with this condition, and he offers these views as a contribution to the subject.

23. **Specialism.**—The growth of specialism is noticed by Davenport who believes that it should be encouraged, as in this way only a healthy growth is to be obtained. The notion or impression that the limiting of one's self to a special branch of study has a narrowing or deleterious effect is, he believes, not against specialism in the abstract, but is true as regards specialists individually to some extent. This tendency to narrowing should be counteracted by catholic methods of practice in the early years and a gradual growth into specialism. He favors the larger use of consultations, and, in conclusion, notices certain lines of practice where the tendency to specialism has had its good effects.

24. **After-Treatment of Operations on the Nasal Accessory Sinuses.**—The main point in the after-treatment of operations upon the nasal accessory sinuses are stated by Wells as follows: 1. Persistence of suppuration is generally to be looked for with one or several of the following causes: Syphilis or tuberculosis, incompleteness of operation, presence of polypus or other obstructions in the nose, empyema of the neighboring accessory sinuses, inadequacy of the local treatment. 2. After-treatment requires not merely antiseptic precautions, but general supervision of the patient's health, and a careful supervision over the nasal fossæ, which must be kept free of secretions, and obstructions in which must be removed whenever found. 3. Empyema in a neighboring sinus, whose ostium is in close relation with the sinus operated upon, will maintain the suppuration in the latter unless cured. The frontal sinus is frequently the cause of antrum disease and the ethmoidal, the cause or effect of disease of both. 4. The cause of the continuance of suppuration is, in many cases, the non-removal of all diseased tissue. The irregularities and anomalies in the form of sinuses are often responsible for such failure. Curettage must be repeated from time to time according to indications. 5. The use of local after-treatment is extremely important. The so-called dry treatment is insufficient and unscientific, as it does not provide for the removal of products of suppuration; only a mass of powder is added to a mass of decomposing debris, whereby an unabsorbable accumulation results, which may retard recovery and give rise to unpleasant symptoms. 6. Frequent and thorough irrigations are the most rational method and protargol in 2 to 5 per cent. solution has given the best results, especially when alternated with a thorough swabbing of all parts of the inner walls of the sinuses with 20 to 40 per cent. solution in water and glycerin. 7. Immediately after operation the sinus should be packed with iodoform gauze, kept in place from 36 to 48 hours and subsequently the sinus should be irrigated daily, and later every other day. A thorough rubbing of the walls of the sinus is to be made with the solution mentioned every three, four or five days as required.

25. **Diphtheria in Measles.**—In two and a half years in the South Department of the Boston City Hospital 157 patients had been treated suffering from this complication, with 54 deaths, or 34 per cent. The death-rate for the uncomplicated diphtheria patients at the same time was less than 13 per cent. Of the whole number, 82, or 52 per cent., had laryngeal diphtheria, and of these 36 died. The greater number of laryngeal cases and the higher death-rate is most striking. The earlier in the course of measles diphtheria develops the more serious the disease. The causes of death are noticed by Blakely and Burrows. In 31 of the 54, diphtheria poisoning alone seems to be the factor, hence the importance of early diagnosis. The existence of diphtheria or the possibility of its onset should be borne in mind in every case of measles. Where the air-passages are especially vulnerable, nasal or laryngeal obstruction occurring in measles almost certainly means diphtheria. If the initial fever disappears and there is a later sudden rise of temperature or if the cough becomes "brassy" in quality or paroxysmal in character and is accompanied by rise in temperature, the possibility of diphtheria must be considered. If the initial fever persists and aphonia develops, diphtheria is probably the cause. The purulent or muco-purulent discharge of partial, or complete nasal obstruction with glairy discharge suggests diphtheria. If the general condition, in addition, suggests it, antitoxin should be given at once without waiting the results of cultures. In all obscure cases the patient should be given the benfit of the doubt.

26. **Umbilical Hernia.**—From the records of 66 cases of umbilical hernia in the Infant's Hospital here studied by Hubbard, he finds that umbilical hernia is ordinarily cured by the adhesive plaster strapping. The younger the child, the earlier the cure may be expected; the possibility of recurrence or failure is slight.

30. **Mucous Colitis in Children.**—The case described by Koplik is one of a class by itself, in children who have a tendency to constipation in infancy and in whom slight derangements of diet are liable to produce alarming symptoms, such as mucous colitis, the cause of which is very obscure. The symptoms are described in detail. In the primary period, capricious appetite, vertigo, waking in the morning with nausea, epigastric pain, vomiting, rapid, high-tension pulse, albumin in the urine, abdominal pain, and prostration are noticed. After the subsidence of these symptoms and emptying

of the bowel, passage of large mucous casts, or masses or small amounts of mucous with the movements occurs. The treatment must be by rest in bed for the immediate attack, stoppage of all food for a while, the use of large warm enemata of the Cantani salt solution twice daily, followed by a nutritive enema of somatose salts, a teaspoonful to 8 ounces of cold water; the vomiting and pain being relieved by small doses of codein. Strychnin should be given later in the case after the first twenty-four hours of the onset of symptoms, and the recumbent position maintained until the patient is strong and the heart returns to its natural action. Later a careful rigid diet, enforced, consisting of skimmed milk, fat being obnoxious, cereals, meat, and vegetables which leave very little residue, avoiding all such as appear undigested in the feces. To forestall an attack give a dose of Carlsbad salts, which seems to be a safe and effective cathartic.

36. **Cancer.**—Broome advocates the parasitic origin of cancer and deprecates the pessimistic views in regard to the possibility of discovery of the germ. He thinks that cancer in its character resembles diseases known to be due to microbic action and asks if it is not due to that, to what is it due?

43. **Gynecology and Insanity.**—Moore reports his experience in the North Dakota Hospital for the Insane. Of 154 females examined only 27 were found to be normal, or 1 in 6. Retroflexions and retroversions were found in 77 per cent.; perineal lacerations in 66 per cent., and other lesions in lesser percentage. Operations were performed on 18 patients for the relief of menorrhagia, metrorrhagia, endometritis, endocervicitis and cervical and perineal lacerations. He claims that in most cases there was benefit in the patient's physical condition. Two patients have been discharged recovered since the operation. In a number of cases there was no improvement. In some there was temporary improvement, subsequent relapse, and a worse condition than before. In a large proportion the disposition was modified and the patients were more pleasant and more easily managed.

53. **Typhoid Without Intestinal Lesions.**—Opie and Bassett report a case which is apparently one of those in which the intestinal lesions are lacking, and review the literature. In other ways the appearance was that of typhoid, rose spots were present and a positive Widal reaction confirmed the diagnosis. Death occurred after complications, and at the autopsy the usual intestinal lesions of typhoid fever were not found, and Peyer's patches and the solitary follicles showed very little appreciable change, only minute points of pigmentation were visible in the solitary follicles of the large intestine. The presence of blood in the stools during the latter part of the disease was not the result of ulceration, since the mucosa was intact. The child evidently died of typhoid fever complicated by a condition resembling purpura hemorrhagica. The authors doubt the entrance of the bacilli into the blood through the uninjured intestine and think it not definitely proven. The case reported, however, emphasizes the fact that the localization of typhoid bacilli is not exclusively in the lymphatic apparatus of the intestine and that the intestinal lesions of fatal cases may be so slight as to be unrecognizable at the time of autopsy.

54.—See abstract in THE JOURNAL, xxxvi, p. 592.

56. **Gastric Ulcer from Diphtheria Bacillus.**—After reporting a case with carefully detailed autopsy, microscopic and bacteriologic examination, Stokes gives the following summary: "It is a point of some interest to note that the stomach is not always able to destroy large numbers of diphtheria bacilli, especially when the powers of resistance have been lessened by an acute disease. The ulcer which was found was certainly produced by the diphtheria bacillus, and it may appear later that these stomach lesions are not as rare as was formerly thought."

57.—See abstract in THE JOURNAL, xxxvi, p. 592.

63.—See abstract in THE JOURNAL, xxxvi, p. 1653.

64.—Ibid., 1651.

65. **Tuberculosis of the Kidney.**—MacMonagle treated and studied 5 cases. He treated the first 3 by nephrotomy; in 2 of these nephrectomy as a secondary operation brought about a condition as satisfactory as a cure. The third had six months of comparative comfort and then died of pulmonary tuberculosis. In the last two cases nephro-ureterectomy was done at once and the patients now seem to be cured. While admitting that 5 cases are not enough to draw definite conclusions from, they seem to be in line with the experience of others and he ventures to offer the following: "1. All cases with vesical symptoms should be put through an exhaustive examination to exclude tuberculosis in the beginning of their symptoms. 2. This examination should embrace staining and animal inoculation with urine taken from each kidney. 3. In all cases of primary tuberculosis—the other kidney being healthy—nephro-ureterectomy is indicated and will give good results. 4. In advanced cases involving one kidney and ureter, nephro-ureterectomy is indicated and preferable to nephrotomy. 5. In cases where but one kidney is involved, early nephro-ureterectomy promises good results in a high percentage of cases.

66.—See abstract in THE JOURNAL, xxxvi, p. 1650.

67.—Ibid.

68.—Ibid., p. 1651.

69. **Uterine Ridges and Folds.**—Dickinson calls attention to the fact that one or more longitudinal or transverse folds dividing the body of the non-gravid uterus into separate prominences or incomplete compartments are of common occurrence and are probably due to muscular contraction. Different points of the corpus uteri may present contrasting degrees of softness and hardness, and thus an irregular contraction occurs. The findings strongly resemble the pregnancy signs of early weeks. He illustrates the different forms and types and remarks that a study of the changes in greater detail and a comparison between them and the alterations found in the early weeks of pregnancy are reserved for another paper.

74. **Nasal Septums of the Mound-Builders.**—In the 40 skulls examined, Wood finds the conditions correspond with the results obtained by Price-Brown, in which 50 per cent. of the septas were found deviated. In only 32 per cent. were the septas actually straight and in the median line, though in 22 per cent. more the deviation was very slight. The 32 per cent., of course, did not include any possible deviation of the cartilage that might have existed during life. The figures do not warrant the assertion of Lennox Browne, who says that in aborigines of Africa, America and Australia there is one asymmetrical to every four symmetrical. He thinks these findings tend to disprove the theory that the commixture of races is accountable for the great majority of septal deformities developed during the growth of the child.

76. **Epithelioma of Penis.**—The summary of this lengthy paper is that epithelioma is by far the most frequent form of carcinoma of the penis and that it furnishes us about 2 per cent. of all cancers, and that phimosis is a strong predisposing factor by chronic irritation. As a rule, the epithelioma is more frequent after middle life, though this has its exceptions. Syphilitic virus has nothing whatever to do with epithelioma, the scars of old lesions being nothing more than an area of decreased resistance or a cause of chronic irritation. Traumatism is a predisposing factor by decreasing resistance. The question of the contagiousness of epithelioma is still to be decided. It usually begins in the glands or prepuce; its origin in the urethra is very rare. Visceral metastasis is very rare. The prognosis in the precancerous stage is favorable, if radical treatment is employed; later it must be guarded. The only safe treatment in any stage consists in thorough eradication of the area of disease and of all the lymphatic glands involved. He gives an extensive tabulated statement of the cases in the literature.

83. **Hysteria.**—Butler points out the manifold symptoms that may be present, the peculiar forensic relations of the disease, hysterical accusations, crimes, etc. He suggests, in regard to the diagnosis, that it must be remembered that it bears the same relations to neurasthenia as paretic dementia does to locomotor ataxia, that is to say, hysteria is the cerebral type of a neurosis, the spinal

symptoms of which are most commonly found in neurasthenia. It may complicate any one of the neuroses as well as constitutional disorders. The underlying state of hysteria is to be taken into consideration. As regards treatment, the removal from home environment and sympathetic friends is essential. Any source of irritation that can be removed surgically should be attended to, as the morbid mentality of the hysteric centers around such. As regards medicinal treatment, the conscious or unconscious sexual factor in hysteria requires regulation, and here camphor monobromate may be found of value, but a course of healthy reading should be prescribed. The rest-cure treatment as carried on at home is a failure, since the psychic element is neglected. What the hysteric needs is not fat, but increased powers of higher inhibition and the rest cure which neglects this factor is worse than useless.

84. **Rheumatism.**—Dock says that we have no specific against pyogenic bacteria, which are probably the basis of rheumatic disease. Serum experiments have not been specially successful. Rheumatism is more than arthritis, and a complete examination of the patient must not be neglected, and the most important lesions are often concealed in the early stages. The first thing in treatment is rest in a well-aired room free from draughts and the proscription of all physical and mental exercise. Flannel or flannelette night clothes should be worn and be kept dry. The affected joints should be set at rest by bandaging and sometimes light splints to hold them in position. The bed should be kept as long as there is fever and joint-pain and longer if the heart has been involved, though in the disease with sound heart it is sometimes useful to allow the patient to be up even with a little fever and pain, but the effect must be carefully observed. The diet in the febrile stage must be light, consisting largely of milk with eggs, broth, gruels, and fruit juices and plenty of water. Carbonated water should be used sparingly on account of the danger of stomach dilatation. Tea, coffee and alcoholics should be prohibited, and mild purgatives, such as calomel in small doses, should be given in the beginning and care taken to avoid constipation throughout the attack. The salicylates are undoubtedly valuable remedies, relieving pain and lowering temperature. Failure to secure good results is often due to insufficient dosage. The close relation between the effective therapeutic and the toxic dose inclines Dock to think that these drugs act, partly at least, by checking bacterial growth. Another cause of failure is premature cessation or diminution of the drug. To get good results we must saturate the body well with the remedy. Generally not less than 120 gr. of sodium salicylate or a similar preparation should be given within twelve hours after the patient is put under the treatment in the average-sized man. Two or three large doses can be given in the next day or two, but are not often necessary. After a definite effect has been produced, the drug should be continued in doses from 30 to 60 gr. per day, stopping entirely as soon as the temperature and joint-conditions permit, but renewing on the first signs of relapse. The salicylates can be well combined with alkalies such as sodium bicarbonate given in camphor water or any other vehicle. It may be given per rectum in doses of .5 to 1 dram in water, and salol or salcphen may be substituted. In a young girl with severe rheumatism, 360 grs. of sodium salicylate were taken along with alkalies in 18 hours, causing considerable hematuria and some other symptoms which soon ceased. Recovery from the effects rapidly followed cessation of the medicine. Smaller amounts, however, have caused dangerous symptoms and even death in severe cases where idiosyncrasy perhaps is to be suspected. Dock doubts whether local applications for the joints are specially valuable and says nothing in favor of antipyrin or other drugs of this class. The cardiac involvement should be looked for, prophylaxis by rest and diet is essential and we must remember that endo- or pericarditis is often latent. When evidences of heart disease, of whatever kind, are present, the salicylates should be used carefully and ice-packs, which he prefers to blisters, kept over the heart. Hyperpyrexia should be treated with the cold bath at 65 to 70 F. with ice water poured over the head, and friction to the extremities. For the delirium the bromids and chloral may be used in addition. For collapse, hot coffee, and hot-water packs over the heart or strychnin should be used. In convalescence the food should be cautiously increased, observing the effect on the heart, temperature and joints. Constipation should be guarded against. Iron is often of benefit, but sometimes aggravates, and arsenic and corrosive sublimate may seem then the more effective. Exercise and bathing should be taken up with care, and the condition of the heart followed for weeks or months.

92. **The Successful Physician.**—The address to the graduating class to the John A. Creighton Medical College by Dr. Henry reviews the conditions of success in practice. The young man may become a successful physician by: 1. Being competent, understanding his profession so far as his abilities and opportunities will permit. 2. By being honorable to his professional brethren, his patrons and the public. 3. By being friendly, agreeable and cheerful, but chary of boon companions, for a man is known by the company he keeps. 4. By not giving too much attention to politics, that is, while being a loyal citizen and faithfully discharging civil obligations, not actively entering political movements as such. 5. Sticking to the calling, and not being discouraged. 6. By always showing a deep and sincere interest in every case under one's care.

95. **Pernicious Anemia.**—This condition is discussed and a case reported. The diagnosis depends not on a single finding, but on the coincidence of many, as follows: The percentage of reduction of hemoglobin must be less than the reduction of cells; in this case 89 per cent. of cells and but 85 per cent. of hemoglobin. Billings adds by saying, that the individual count must be less than the volume count. Poikilocytosis and polychromatosis must be present. More importance is placed by some on the latter than the former, which is present in many other forms of anemia. There must be nucleated blood cells, including the megaloblasts. These were found in great numbers in the case reported. All these points together, together with the physical examination, and the absence of demonstrable disease elsewhere, confirm the diagnosis of idiopathic pernicious anemia—the Addison-Biermer-Ehrlich disease of the Germans.

98.—See abstract in THE JOURNAL, XXXVI, p. 128.

99.—Ibid.

106. **Teachings of Orthopedic Surgery in the United States.**—Circulars were sent out by Sherman to all the members of the Association of American Medical Colleges, asking facts in regard to instructions in orthopedic surgery in the institutions. In only 38 was it mentioned as being taught either didactically or clinically, it being behind most of the other subjects, the only one having a lower representation being genito-urinary surgery, which was taught in only 37 institutions. Nineteen of these colleges have commenced the teaching of orthopedic surgery since 1887. In 12 schools merely the statement that the subject was taught was given; 9 schools limited the teaching to didactic lectures a certain number of hours per week. The showing, he thinks, is a poor one, considering the importance of the subject.

107. **Chromic Acid in Skin Cancer.**—Montgomery recommends the use of chromic acid as a suitable treatment for skin cancer. He calls attention to the importance of thorough cleansing and curetting of the friable diseased tissue before the application, and the insurance of the sore being dried at the time. The pain is quite severe for a few minutes. The advantages are that the scab is tough and durable, which is an important matter in the subsequent healing of the wound. A number of cases are reported in which this treatment was used.

119. **Dioptric Value of the Cornea.**—This article is a controversial one replying to the statements and views of Dr. W. Suter in a former issue of the *Ophthalmic Record*. The exposition by Weiland is necessarily too technical to be reproduced, but his conclusions are that the cornea has a fixed dioptric value which is expressed by a convex lens, the dioptric power of which equals the reciprocal of the anterior focal distance, the lens being placed at the center of the cornea. Such a lens of 43.20 D. for a cornea of 7.8 mm. radius, placed at the

corneal center, will give of distant objects an air image of exactly the same size and at the same place as the real cornea does. This lens does the same refractive work on the parallel rays of light and air as does the cornea; both, therefore, have the same dioptric value. The formation of equal images of distant objects as an essential condition to be fulfilled by the lens which is to be the equivalent of the dioptric power of a refracting surface or system has been entirely overlooked by Dr. Suter and has caused him to make the untenable assertion that the cornea has no fixed dioptric value.

120. **Exophoria.**—The normal position of the visual lines is not definitely settled, but, according to Parker, in the opinion of most careful observers it seems to be at from 1.5 to 2 dioptrics esophoric. The average normal exophoric in accommodation is from 4 D. to 5 D. He does not think the opinion of those who claim that 2 D. exophoria for 13 inches is normal, is borne out clinically. The average difference of divergence between far and near is about 5 D. Thus the patient with 2 D. of esophoria for distance will have about 3 D. of exophoria at 14 inches. In orthophoria the average normal power of divergence is about 7 D., and the ratio of power of divergence to the power of convergence is about 1 to 3 or 4. There is no one symptom pathognomonic of exophoria; headache, asthenopia, dizziness, nausea, rapid exhaustion, diplopia, etc., may any of them be present. To determine the amount of exophoria, repeated tests should be made after careful refraction under a mydriatic and the treatment should be with consideration of the patient's general health, and hygienic surroundings as well as the condition of the ocular muscles. Never hope to cure a case by treating a single symptom. He summarizes the treatment of exophoria as follows: "1. Eliminate the possibility of the ambalance being a symptom of some general disease or nervous disturbance. 2. Refract carefully under a mydriatic. 3. If deviation is under 5 D. increase the power of convergence to 50 D. 4. If glasses must be worn for refractive error, decenter or add prisms up to 4 D. 5. Tenotomy or advancement.

125. **Anesthesia, Nausea.**—Kuder finds a valuable gastric sedative in chloretone, especially after the use of morphin in the sickness that it sometimes produces. He has also tried it as a preventive of nausea during or after general anesthesia. In a series of 7 cases, 15 grains of chloretone were given before administering the anesthetic; none of the patients vomited during or after the inhalations of chloroform or showed any gastric disturbance whatever. In one case in which it was necessary to give the anesthetic immediately after a full meal, chloretone was used as a preventive of vomiting with great success.

130. **Tropical Remedies.**—Porter suggests attention to local remedies employed by the natives in tropical regions, many of which are specially effective, as he has observed. One of these used for yellow fever consists in verbena officinalis and guinea-hen-weed (pentiveria alliacea) and has good results. He thinks if it were necessary, instances of the efficiency of aboriginal therapeutics in the treatment of almost all tropical diseases might be multiplied, and the subject is well worth following up.

135. **Pelvic Surgery.**—Deaver pleads for simplicity in surgical operations. He claims that it means safety, surety, confidence, neatness and saving of time. He prefers the abdominal route in the majority of cases as being simpler of performance, safer, avoiding distributing infection, and reducing the danger of general peritonitis by the use of gauze packing. It offers less liability of injury to the bowel, ureters, and important blood vessels, and adhesions are less likely to follow. It minimizes the danger of hemorrhage and aids generally by the facility offered for inspection. It also enables the surgeon to operate with very few instruments. One of the greatest advantages is the possibility of the use of the Trendelenburg position. Radical operations per vaginam are with few exceptions, he thinks, to be discountenanced on account of the limited area for manipulation, and the impossibility of inspection without destruction and removal of the uterus, which should not be done except for good and sufficient disease of that organ itself. The greater liability to hemorrhage, primary and secondary, the greater danger of injuring the ureters, bowels, bladder and large blood vessels, and the danger of doing incomplete surgery are mentioned, also the inability to repair satisfactorily injuries to the bowels or bladder, and lastly, he mentions the inability to deal safely with inflammatory masses which involve the vermiform appendix. It is good practice, he says, to remove the appendix when the abdomen is opened for other reasons, if it can be done without added risk to the patient, as every human being who is without an appendix has a better chance in the struggle for existence than he who is menaced by the treacherous and touchy little organ.

FOREIGN.

British Medical Journal, July 20.

Total Extirpation of the Prostate for Radical Cure of Enlargement of that Organ. P. J. FREYER.—The author has operated in four cases successfully for complete enucleation of all the lobes of the prostate through a suprapubic opening. After introducing the rubber catheter the most prominent portion of one lobe is caught if possible by long forceps and the mucous membrane covering it snipped by scissors. Through this incision a forefinger is introduced and the tumor enucleated, the same process being followed on the other side and subsequently on the middle lobe. During the removal of the lower lobe the finger is passed forward as far as the triangular ligament. Introduction of the assistant's finger into the rectum pushes forward and steadies the tumors, thus facilitating their removal. The bleeding, though a little profuse at first, is easily stopped. No vessels have to be tied or sutures introduced. A one-half inch drainage tube is inserted in the suprapubic wound for a short period; the results have been good. He discusses the subject and the anatomy of the parts and shows that each of the lateral lobes is really independent, the prostate being a double organ in early fetal life. In the removal by the method under consideration, the organ is enucleated in its capsule from the surrounding sheath, and then stripped off the urethra, which with its enveloping tissue is left intact. The ejaculatory ducts are also left uninjured when the lobes come away separately, or the urethra was pushed between them; he is not so certain as to this when the prostate comes away as a whole, as happened in one of his cases, but this is not of practical importance at the age at which the operation is performed. The large cavity left after enucleation of the prostate rapidly contracts by the inherent elasticity of the sheath, the contraction of the surrounding muscles and pressure of the neighboring parts; its surfaces being brought together, and the parts being vascular, union by first intention probably takes place. In this operation there was complete restoration of the power of voluntary micturition after habitual catheterization had been employed in one case for five or six years.

The Danger of Anthrax from the Manipulation of Horsehair, and its Prevention. ALEXANDER SCOTT.—The dangers of infection from horsehair are noticed by Scott, who reports a case in which anthrax was produced by contact with this substance, and he thinks that such possibilities are frequent. For the prevention of the condition he would suggest that the workers in horsehair should always wear overalls and no one with abrasions or sores should be allowed to work unless absolutely protected. All workers should wash themselves frequently, and especially before taking food and any case of illness. Boils or swellings should be reported to the manager so that the disease may be taken in its early stages, and that other workmen similarly exposed can be warned. The bales should be immediately immersed in water, and no handling of the raw material be permitted, except in the wet state. With this, risk of contagion will then be only possible through abrasions of the skin. He has no faith in fans, respirators or currents of air; the germ must be killed; by such means it is simply shifted. The hair should be boiled, say for thirty minutes, in water to cleanse it and soften the agglutinative discharges, which may contain the germs. Afterwards steam should be applied for some time at pressure of 0.15 atmosphere. If complete disinfection by boiling is desired it can be accom-

plished by the use of a 2 per cent. solution of potassium permanganate, afterwards bleaching with 3 per cent. solution of sulphurous acid. All dust and residue should be carefully burned. With these precautions he thinks the disease may finally be stamped out.

Progress of Abdominal Surgery. CHARLES S. KILNER.—The history of abdominal surgery is reviewed by Kilner, who credits McDowell's first ovariotomy as the starting point. He also says the most scientific and valuable advance in the whole range of abdominal surgery has been the various operations for anastomosis between the stomach and intestines and between the different portions of the intestinal canal, for the principle of which and the rendering it of practical utility we are indebted to Professor Senn. He also gives credit to another American, Fitz of Boston, for our knowledge of appendicitis.

Some Considerations in Relation to the Investigation of Cancer. HERBERT C. MAJOR.—The alleged increase of cancer, and Newsholme's view that it is possibly largely due to improvement in registration and thoroughness in its recognition, etc., is first noticed by Major, who, while recognizing that the general opinion and weight of evidence appear to be in favor of actual increase, still thinks there is some basis for Newsholme's theories. As regards the question of specific parasites of cancer, he says: Can we admit it as settled that especially when the difficult and highly-special nature of the investigation is considered, that any number of failures should necessarily outweigh the apparently definite successes of Sjöbring and others in producing true cancer by inoculation, few as the successes have as yet been? May it not, on the contrary, be reasonably assumed that these results are well founded and the cause of failure should be looked for by further investigation?

The Lancet, July 20.

The Pathology of Hysteria. THOMAS D. SAVILL.—After first showing a typical hysteric syncope, the author calls attention to the special clinical features: an innate, or inherited tendency to fainting spells, etc.; the sex of the patient, almost invariably female; the determining cause, usually either emotional or shock; the liability of the patient to flushings or flush-storms, which are interchangeable with one another and with faints; pallor lasting through the attack, indicating that it is almost certain to be due to vasomotor disturbances. The copious urination after the shock, on account of the kidneys being very sensitive to any alteration of the blood pressure, furnishes a sort of clue to the pathology. The cerebral blood pressure, as Leonard Hill has shown, is largely if not entirely regulated by the amount of blood in the sphlanchnic area where the arterioles are capable of an enormous amount of expansion and contraction, and this, Savill believes, is the basis of the pathology of the faints and some of the other symptoms. It seems highly probable that the nervous apparatus of the sphlanchnic area of hysteric individuals is unduly susceptible, readily influenced by emotional conditions. Next he notices the hysteric diathesis, characterized by the lack of will power, emotional instability and physically by vasomotor symptoms, such as flushing and sometimes even localized erythema or stigmata. Also these patients have the superficial and deep reflexes slightly exaggerated and there is a variability of vital phenomena from day to day which is characteristic. Sooner or later, generally before 25 or 30 years of age, a large proportion of these subjects has some decided manifestation of hysteric effects, such as hysteric attacks, anesthesia, etc. As regards the causes of hysteria the two predisposing ones are sex and heredity. Out of 336 cases which he collected, only 26 were males. He calls attention especially to the heredity in these cases, either direct or indirect, and to a point which he thinks has not been sufficiently emphasized, alcoholism in the parents as a cause of this condition. Among the exciting causes may be mentioned anything that will lower the bodily resistance, the will power or the emotional stability. He does not take any stock in the theory that celibacy and unsatisfied sexual desire are causes, though he says it is not a question easily settled. Environment undoubtedly has its effects, and education and social position count for something; the proportion of hysteric cases is largest amongst the leisure classes, though the difference in percentage is not great. He quotes Briquet that hysteric mothers lose their children more generally at an early age, possibly not knowing how to take care of them so well. The pathology of the condition, as already noted, is due to sensitiveness of the splanchnic circulation, and he finds in the ileo-hypogastric nerve a hysteric center. This nerve is apparently the centripetal depressor nerve of the abdominal sympathetic, and irritation of it by pressure in this region causes dilatation of the sphlanchnic area and consequently cerebral anemia.

Prognosis and Treatment of Ascites Occurring in Alcoholic Cirrhosis of the Liver. H. CAMPBELL THOMSON.—The author divides ascites which during life appears to be due to hepatic cirrhosis, into three groups: 1. Those in which the diagnosis is erroneous. 2. Those in which the ascites is associated with cirrhosis, but actually due to some other cause. 3. Those in which the ascites is directly dependent upon the cirrhosis. The liabilities of error in the diagnosis of cirrhosis are numerous and the first class is only mentioned for the purpose of emphasizing the necessity of basing the evidence of cures upon ultimate postmortem examinations. The commonest causes of ascites associated with, but not directly dependent on, hepatic cirrhosis are undoubtedly chronic peritonitis and chronic perihepatitis. The third group, where the ascites depends directly upon the cirrhosis, has a very bad prognosis, the majority of the patients dying within a few weeks after the ascites is first observed. The chances of cure of actual cirrhosed liver, of course, are minimal; but the condition of ascites due to other causes may be somewhat different. He refers here to Morison's operation, and gives a table of the cases thus operated on; concludes that if the operation is to have any future it must be yet shown that it possesses some distinct superiority over tapping. It should not be undertaken if there is reason to believe that ascites is directly dependent upon cirrhosis.

Tuberculosis of the Choroid. GEORGE CARPENTER AND SYDNEY STEPHENSON.—The summary of the paper is as follows: "1. Tubercle of the choroid may be met with in any form of tuberculosis, whether acute, chronic or obsolescent. 2. It is common in acute miliary tuberculosis and tuberculous meningitis, since it was present in 50 per cent. of our cases. As a rule the lesion was of small size, solitary, and limited to a single eye. 3. It is far more important in chronic tuberculosis than is generally supposed. It was present in 9.24 per cent. of our cases. The tubercle in this form of disease may be single, multiple, disseminated, or diffused. In very rare instances it may attain great dimensions and eventually even perforate the tunica of the eyeball. 4. It is present in a certain number of cases of quiescent tuberculosis. It generally takes the form of a large, more or less pigmented, area situated in or about the central region of the fundus oculi, with or without satellites."

Infantile Scurvy. EDMUND CAUTLEY.—The author reports four cases of infantile scurvy, two due to prolonged diet of sterilized cream and milk, and two to patent foods; in these cases the treatment consisted in a diet of unboiled milk, with fruit juice, meat juice and barley water. He believes that the use of boiled milk is by no means contra-indicated, and considering the possible infection of this food it is advisable; any harmful effects can be usually met by proper methods of treatment. While sterilized milk for a continuous diet may produce scurvy it will not, unless continued many months, and will then only produce a mild form of the disease. Any health infant can be brought up on a diet of boiled milk, suitably diluted, and mixed and given in proper quantities and at proper intervals. Failure to bring up the infant on such a diet is rarely if ever due to the fact that milk is cooked, but is due to some error in the mode of feeding or the amount given. A very slight tendency to scurvy can be usually remedied by addition of barley water and a little fruit juice.

Intercolonial Medical Journal of Australasia, June 20.

Value of Peroxid of Hydrogen, Chlorid of Cobalt ($CoCl_2$) and Ferrous Hydrate as Antidotes in Poisoning by Cyanid

of Potassium. C. J. MARTIN and R. A. O'BRIEN.—The possibilities of poisoning from cyanid, now used extensively in gold mining, led the authors to make a series of experiments on the antidotes to this chemical. They find that there is no physiologic antidote to hydrocyanic acid or any remedy available that can follow this powerful poison into the circulation and neutralize it. All we can do is to endeavor to stop further absorption by converting the unabsorbed balance into some non-poisonous compound. To do this, chemical reaction must take place very rapidly, and hydrogen peroxid fails entirely from its slow action. The cobalt salts are poisonous; otherwise they would be very useful, since their reaction with hydrocyanic acid is instantaneous. Ferrous salts, administered with sufficient alkali, are as efficacious as cobalt salts. At body temperature the formation of ferrocyanids is instantaneous; but they possess two disadvantages: The difficulty of keeping them in solution and the absolute necessity of administering enough alkali at the same time to completely neutralize any stomach contents. This can be best effected by simultaneous administration of magnesium oxid. The displacement of ferrous salts by other remedies of recent years is no doubt due to inadequate appreciation of this fact. The extreme rapidity of the action of cyanid poison leaves no time to prepare solutions and collect remedies. The authors, therefore, recommend that in all mines and mining laboratories where the chances of accidental poisoning from cyanids occur, solution of ferrous sulphate, weak potash, and a small package of magnesium oxid, together with a stomach tube and suitable receptacle for mixing, should be kept ready prepared in some suitable position, so that they can be administered with only a few seconds' delay.

Bulletin de la Soc. Med. des Hop. de Paris, July 11.

Clinical Determination of the Coagulability of the Blood. G. MILIAN.—The blood coagulates much more rapidly after it has been flowing a few minutes than at first, especially in the drops squeezed out after the hemorrhage has ceased. Retraction of the clot may not recur at the commencement of a hemorrhage, but may appear toward the end. For these and other reasons, Milian recommends that a hundred glass slides should be arranged along the edge of the table and the patient whose finger is pricked should deposit a drop of blood on each slide, while the number of the drop, the moment of its contact with the slide and the moment when coagulation occurs, are recorded and also the few drops squeezed out of the finger after all hemorrhage has ceased. The exact moment of coagulation can be determined by raising the slide upright. While still fluid, the drop of blood takes the shape of a tear, but as soon as it is coagulated it retains the shape of an inverted saucer. It is important to note the number of drops that fall during each minute of the hemorrhage. In a normal person it lasts two or three minutes and about 20 drops fall. In a person with atrophic cirrhosis, the hemorrhage lasted nine minutes, with 220 drops. In Recklinghausen's disease the curve was intermediate between these extremes. Coagulation occurred in the first drop from the first subject in thirteen minutes; from the second in twenty-nine and from the third in twenty. In the last drop, in twenty-two minutes in the first case: in forty-five minutes in the second, and in thirty minutes in the third. Milian announces that very valuable information can be derived from this comparative study of the coagulating power of the blood in various affections, and promises further details later.

Protracted Uremia with Bulbar Symptoms. P. LONDE. In a case of protracted uremia with a bulbar syndrome, the first symptoms were vomiting, distress, with or without gastralgia, suffocation and tachycardia, with indications of progressively increasing uremia, while the condition of the heart did not change. The affection induced vasomotor disturbances, pulmonary and intestinal hemorrhages, vasodilatation, interrupting habitual arterial hypertension, edema, emaciation, various psychic disturbances connected by a typical "anxiety," respiratory disturbances with paroxysmal distress, periodic respiration and a terminal labio-glosso-laryngeal paralysis. Londe calls attention to this bulbar form of protracted uremia. The bulbar syndrome includes the paralysis, vomiting, tachycardia and dyspnea—simple, pseudo-asthmatic or with periodic respiration—the latter a symptom of juxta-bulbar origin—the attacks of distress and the intestinal hemorrhages as vasomotor disturbances. The distress is a symptom which may appear isolated, in the latent form or awaking with a start, and may herald periodic respiration. The Cheyne-Stokes respiration observed does not belong in the bulbar or basilar syndrome proper, but must be due to some transient or permanent derangement in the supra-bulbar tonic centers. The anxiety observed explains to a certain extent the mental condition of certain patients with Bright's disease, who resemble anxious melancholiacs. In these special cases of protracted uremia small doses of opium (5 or 10 cg. in a suppository) are useful in relieving the anxiety. During the periodic respiration, theobromin proved more effective than digitalin, alternately given and suspended for three days. It is possible that lumbar puncture might prove a useful measure in these cases of uremia with Cheyne-Stokes respiration. This case and others observed by Londe, indicate that the medulla oblongata plays a more important rôle in certain cases of uremia than has been hitherto appreciated.

Revue de Chirurgie (Paris), July.

Disturbances Caused by Wisdom Teeth. MOTY.—The real pathogenic cause of the troubles due to wisdom teeth, is the inclusion of proliferating epithelial debris around the roots of the tooth. This debris may remain latent, and the proliferating evolution usually starts under the influence of various causes, such as the infection of the gum during the eruption of the tooth, repeated traumatisms from the action of the jaws and caries of neighboring teeth. In many cases, however, the epithelial proliferation occurs without appreciable cause. This vicious evolution is as frequent in the upper as in the lower jaw, but causes less disturbance in the former. Sixteen typical cases are described in detail in support of this new theory, which is proved by the discovery of gingival epithelium proliferating more or less, and, occasionally, irregular particles of enamel around the roots of the extracted teeth. Another proof is the persistence of a fistula with no phlegmonous conditions nor actual dental lesions, and its spontaneous healing as soon as the tooth is extracted; also the comparatively frequent subacute cases with no symptoms except a moderate pain and a certain amount of mobility of the tooth and hyperostosis of the jaw; also the lack of relief from the methods ordinarily employed against strangulation: extraction of the second molar and multiple incisions of the apparently phlegmonous focus. The upper wisdom teeth never cause severe disturbances as strangulation does not occur. Slight disturbances are due to irritation of the gum during the eruption of the tooth; severe, to the proliferation of the epithelial debris, the total inclusion of the tooth or caries. The gravity of the disturbance is usually on account of the invasion of the dental canal by the inflammatory process, the infectious character of this process in case of caries, rendering it especially serious. Strangulation complicates nearly every case, and extraction is the only rational treatment. If necessary to preserve the tooth, the fungus growths at the roots must be scraped off through the external surface of the jaw without opening the buccal cavity.

Archiv f. Gynekologie (Berlin), xxxvi, 1 and 2.

New Method of Extirpating Uterus and Vagina. A. DOEDERLEIN.—The entire uterus is drawn down and bisected on the median sagittal line and each half is at once seized in a clamp. The advantages of this procedure are that the entire field of operation is exposed at one stroke and the uterus can be removed without touching the surrounding tissues or wound. Experience with thirty-six patients thus treated has been extremely satisfactory, Doederlein reports.

Remote Results of Extirpation of Primary Carcinoma of the Vagina. KROENIG.—A large number of cases that have been followed are tabulated and the details described. The best results were attained in the cases in which the uterus was removed at the same time. The carcinoma was in the posterior portion of the vagina in 75 per cent. of all cases, and in these the corresponding circle of the rectal tissue should always be

removed. In a personal case described the vagina was so infiltrated with tumors that the finger could scarcely reach the portio. The patient was pregnant and Kroenig waited until term. When labor became vigorous he curetted with a large sharp spoon, the protruding cancerous masses and delivered a living child with forceps. Hemorrhage was controlled with tampons, and the patient left the hospital the ninth day.

Treatment of Eclampsia. A. GLOCKNER.—In 6902 births at the Leipsic clinic, eclampsia followed in 143, that is in 2.07 per cent. Of this number, 80 per cent. were primiparæ; 85.44 per cent. of the 158 children survived the birth. More than 1 per cent. of albumin was noted in 77.5 per cent. Omitting the moribund cases the mortality was 15.49 per cent. In two instances epilepsy developed subsequent to the eclampsia in patients 22 and 26 years of age, respectively. The treatment was venesection, with or without infusion of salt solution; the os was dilated with a rubber bag or enlarged by incision between clamps, and delivery was accomplished at once in profound narcosis. In four cases the convulsions were arrested for twenty-five to seventy-nine hours after one to three venesections. Every case was treated by lavage of the stomach and injection of a solution of some vegetable acid, usually tartaric. In one case a primipara was delivered in seventeen minutes after operative and bloodless dilatation of the cervix. None of the patients succumbed to hemorrhage and only .68 per cent. to sepsis.

Congenital Atresia of the Small Intestine. R. BRETSCHNEIDER.—In eleven cases in which this condition was recognized, an operation was performed for its relief; entero-anastomosis in 4 and an artificial anus in 6. In Franke's case the artificial anus became obstructed with food matters. A mucilaginous substance administered with the food would have prevented this. In the personal case described, the visible intestinal peristalsis, lack of spontaneous feces and vomiting of fetid masses by a new-born infant, in connection with the general depression, indicated intestinal occlusion. A circular constriction at the lower third of the ileum was found at the laparotomy, fifty hours after birth. The atresia and 4 cm. of the intestine were excised. None of the children recovered, but as the operation is the only chance of saving life, it should be undertaken at once and the earlier the diagnosis, the better.

Surgical Treatment of Post-Operative Peritonitis. K. HINTZE.—There is a chance of recovery in apparently the most unfavorable cases of diffuse post-operative peritonitis. Hintze reports two patients successfully operated on. The earlier and the simpler the operation, the greater the chances of recovery. As a rule merely evacuation and drainage of the exudate, with dry asepsis, are necessary.

Treatment of Chronic Endometritis in General Practice. C. MENGE.—Every case of chronic endometritis requires appropriate general treatment, including suggestion in case of hysteria and neurotic complications. The curette should be banished and the general practitioner is also warned against zinc chlorid, but formalin is earnestly recommended for local application in both the hemorrhagic and the secretory varieties of endometritis. It does not cause colic; the scabs are not so hard and thick as with other caustics. It is strongly bactericidal, but there is no toxic absorption, as part of the formalin is retained in the chemically altered tissues, and the rest can not penetrate through this shield. Menge recommends formalin to the general practitioner as especially adapted for ambulant treatment of chronic endometritis, in the proportion of 30 parts of formalin to 70 of water. It is applied on a hard rubber sound wound spirally with a strip of cotton 15 cm. long by 1 to 1.5 cm. wide, thin enough to be transparent, commencing to wind at the tip, the edges of the strip just touching. When the winding is complete, the sound is drawn spirally through the fingers once more to smooth the cotton. Two or three of these cotton-wound sounds are used for each patient. The formalin is never applied at the time of the preliminary investigation, but two or three days later. After insertion of a speculum the external os is washed with sublimate; the cervix is opened with a retractor and the cotton sound then applied. A little gauze is inserted in the vagina afterward to catch any exudation, and is removed by the patient in twenty-four hours. The patient lies quiet on the table five minutes and is then dismissed, to return in eight days. Seven years of experience have shown the great benefits to be derived from this method of treatment and the absence of all danger. The contra-indications are pregnancy, gonorrheal affections, polypi or myomata, and tubercular or malignant alterations of the uterine mucosa.

Berliner Klinische Wochenschrift, July 1.

Hysteria Masking Carcinosis. LILIENFELD.—A woman of 60 who had been a notorious hysteric complained of digestive disturbances and constantly increasing weakness of the legs. The only objective symptom observed was the absence of knee-jerk, which was supposed to be explained by a gouty affection of the knees. After four weeks the patient died with indications of apoplexy. At the autopsy a carcinoma was discovered in the stomach with multiple metastatic carcinosis of the nerves and meninges.

Centralblatt f. Bakteriologie (Jena), June 5.

Third Annual Report of the Italian Society for the Study of Malaria. CELLI.—This society was founded by private initiative and has had only 13,000 lire, or about $2600, at its disposal. The reports and bulletins with recent works on malaria, are distributed to all parts of Italy, and physicians in malarial districts are kept posted in the progress of the study of malaria. The recent regulations to supply even the most remote hamlets of the kingdom with pure quinin at the lowest rates are due to the exertions of the society. It is now urging legislation to render quinin treatment of malaria obligatory, in certain cases, to prevent fatal pernicious fever. Pamphlets written in a popular style and profusely illustrated are to be distributed among the working-classes.

June 10.

Value of Euchinin in the Prophylaxis of Malaria. A. MORI.—Forty-two laborers in an extremely malarious region were treated with .5 gm. euchinin as a preventive measure, in two doses before meals, daily, and all but 5 escaped malarial infection, that is, all but 11.9 per cent. Of the 47 who did not take the euchinin 39, that is, 82.97 per cent., contracted some form of malarial fever.

June 13.

Mechanical Protection Against Malaria. C. FERMI.—Tests with 104 persons are described, who traveled on foot, sleeping in the open air, through the most pestilential malarial regions of northern Sardinia, protected only by bee-keepers' caps, veils and gloves, during the most dangerous seasons of the year. Not one who wore them faithfully contracted malarial infection, but a few boys who occasionally relaxed the necessary vigilance were prostrated by it.

Centralblatt f. Chirurgie (Leipsic), July 20.

Retrograde Esophagoscopy. C. HOFMANN.—A patient who had applied for relief from disturbances traceable to the swallowing of a small nail two years previously, was operated on by an incision in the region of the cardia. Through the fistula thus formed the constriction could be readily dilated from below. It also allowed the introduction of the esophagoscope, which entered for 25 cm. without force. The heart action was noticeably increased but subsided as the patient was reassured. The existence of a diverticulum was thus ascertained, with other important information.

Cure of Phlegmon Consecutive to Perforation of the Esophagus. VON HACKER.—Gastrotomy was done to relieve a woman 37 years of age who had an impermeable stricture of the entire esophagus, resulting from swallowing lye. Before the treatment was completed she was compelled to leave the hospital and returned two months later with the gastric fistula closed. Attempts to eat by the mouth had resulted in perforation of the esophagus and an acute, purulent phlegmon of the mediastinum, in the upper portion of the thorax. A tumblerful of fetid pus was evacuated through a large incision in the neck, with much gas. The cavity was irrigated with a solution of salicylic acid and a strip of gauze was carried down to

the deepest point of the cavity which extended from the spine to the sternum, 10 cm. below the jugular. It was drained and the patient kept in the Trendelenburg position, at first. The perforation in the esophagus closed spontaneously the fourteenth day. This was ascertained by inserting a sound covered with a strip of gauze dipped in potassium cyanid, to the bottom of the cavity. The patient then took a swallow of a 2 per cent. solution of citrate of iron and the gauze was stained bright blue for 3.5 cm. from the tip of the sound. This test was positive until the fourteenth day, after which the blue stain failed to appear. The aspirating drainage was maintained for two months, the patient wearing a bottle for the purpose after she left the bed. Five cases of phlegmon of the mediastinum have been operated on by an incision in the neck and three promptly recovered. Von Hacker's first patient was in such an advanced stage of sepsis that the operation was unable to arrest the consequences. Radiograms showed that the cavity was easier of access from the right side, which was the point of the incision. Von Hacker was prepared to make a second incision from the back, lower down, if the first proved insufficient for thorough drainage of the cavity.

Exploratory Excision Through the Esophagoscope. G. GOTTSTEIN.—At the Breslau clinic small fragments of dubious tumors have been excised through the esophagoscope 47 times in 34 cases. This procedure is not at all dangerous or inconvenient; the point bleeds but slightly and the excision frequently opens a passage into the stomach and thus relieves the patient. Gottstein uses a special forceps for the excision. In 29 cases the microscope showed a carcinoma, in 3 an adenoma, in 1 a peptic ulcer and in 1 actinomycetic infection of a gland.

Resection of the Lung. L. HEIDENHAIN.—The patient was a man of 42 with an extensive suppurating bronchiectasis. The left lower lobe of the lung was disseminated with multiple abscesses, the upper lobe not suppurating and the other lung sound. The resection of the lower lobe produced a remarkable improvement in the patient's general condition. There was considerable hemorrhage, controlled by clamps. Cicatrization was promoted by fragments of lung tissue adherent to the walls of the cavity. Seven months after the operation the cavity was lined with bronchial mucosa. The fistula was still secreting a muco-purulent fluid mostly derived from the open bronchi, which required cleansing twice a day. A carcinomatous nodule was found in the resected tissue. The patient died nearly eight months later—cause unknown.

Bone Charcoal After Operations for Local Tuberculosis. A. FRAENKEL.—Bone charcoal is as effective as iodoform in promoting the healing of wounds after operations on account of local tuberculosis. It can be used as a powder or in a glycerin emulsion. Fraenkel recommends the former, and believes that the proliferation of tissue induced by the mechanical action of the powder gives it an indirect bactericidal influence, similar to the action of iodoform.

Pure Carbolic Acid for Septic Wounds. VON BRUNS.—Phelps' method of treating wounds with pure carbolic acid is highly commended by Bruns, who endorses it after much clinical and experimental research.

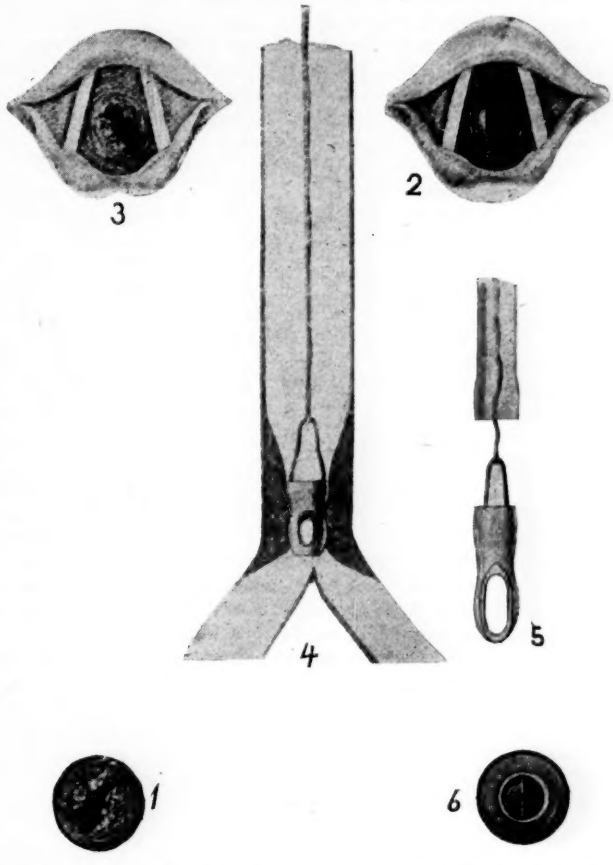
Post-Operative Pneumonia. STOLPER.—Fat embolism of the lungs is a factor in the production of post-operative pneumonia which has not yet been sufficiently regarded. Stolper found extensive fat embolism in the lungs of an elderly woman who died eight hours after a laparotomy to relieve ileus from gallstones.

Remote Results of Castration for Tuberculosis of the Testis. VON BRUNS.—Reviewing 111 cases treated at Tübingen during the last fifty years, Bruns finds that 46 per cent. of the patients treated by unilateral castration have been cured for from three to thirty-four years, and that 56 per cent. of the patients treated by bilateral castration have been cured for three to thirty years. One-half of all the castrated patients were permanently cured. In all of these the tuberculosis was restricted to the genital organs. Almost all have died who had tubercular lesions of the urinary or other organs.

Deutsche Med. Wochenschrift (Berlin and Leipsic), July 11.

Cinnamic Acid and Igazol in Experimental and Clinical Tuberculosis. M. WOLFF.—Numbers of guinea-pigs infected with tuberculosis were treated with cinnamic acid and other groups with igazol. Neither treatment had any influence on the development of the infection, which progressed the same as in the control animals, and the anatomic lesions were identical when killed after several months of treatment or the animals died spontaneously. Similar negative results were obtained in 42 patients treated with cinnamic acid and in 27 treated with igazol.

Treatment of Deep Stenosis of the Trachea. H. VON SCHROETTER.—The accompanying illustrations show the benefits derived from direct bronchoscopy and the application of a mechanical device to dilate tracheal stenosis. The patient was a woman of 47 with a primary tubercular constriction of the trachea, shown in Fig. 1, as observed by bronchoscopy, 23 cm. below the teeth. The stenosis was curetted and treated with



lactic acid, securing the result seen in Fig. 2. The constriction recurred, however, Fig. 3, and with recurring bronchitis threatened danger of suffocation. To remedy this Schroetter inserted under bronchoscopy the device shown in Figs. 4, 5 and 6. It was made of German silver as a certain weight—4 gm.—was necessary to facilitate its insertion and maintain it in place; the polished surface offered less friction to secretions than rubber, and it cast a distinct shadow in radiograms. The thread was fastened outside of the mouth. The relief was so great that the patient clamored for the dilatation. The tube was left in place for seventy hours in the course of twenty-one days, an average of a little more than three hours a day. It fitted so perfectly that a slight effort was necessary to draw it out, and even the most violent coughing failed to dislodge it. The tube was 18 mm. long, and 10 to 12 mm. in diameter. The patient was seen for the first time in July, 1900. The systematic dilatation occurred in January, 1901, during three weeks and the patient has since been free from all disturbances from stenosis, and there have been no symptoms of irritation or decubitus from the compression of the dilator. This method of

treatment would probably prove efficient in scleroma of the trachea, post-syphilitic cicatricial formations or traumatic stenosis after tracheotomy with struma, of which Schroetter has recently had occasion to observe a case.

Muenchener Med. Wochenschrift, July 9.

Septic Endocarditis. LENHARTZ.—Four recovered out of 38 cases of septic endocarditis at the Hamburg General Hospital, and 1 patient is still under treatment. In 22 cases the endocarditis was acute, lasting from four days to eight weeks, eleven days being the average of 18 cases. In 16 cases the disease assumed a chronic course of between three and seven months. Few physicians are aware of the fact that septic endocarditis can run such a protracted course. In Huebner's wide experience he has seen but 4 chronic cases, the duration ranging from four to nine months. In 12 patients there were evidences of old valvular defect, but in 2 of these the recent extensive vegetations were at points remote from the old, once at the aorta and once at the tricuspid. In 3 other cases of severe sepsis, the blood swarming with streptococci during life and innumerable metastases, in spite of old, extensive endocarditis, there was no trace of recent valvular lesions. In 11 cases the fatal endocarditis followed an injury of the urethra, in 7 from the introduction of a catheter, bougie or something of the kind and in 4, fresh gonorrheal lesions. In 5, it followed the puerperium, in 3 croupous pneumonia and in 2 each, angina and cholecystitis with inflammation of the portal vein. Loeb has recently collected 62 cases of endocarditis after gonorrhea, including a number of recoveries. Lenhartz observed one case—a housemaid 16 years old—with violent, acute gonorrhea for eight weeks, when suddenly severe general symptoms appeared, dyspnea and oppression in the cardiac region with an unusually loud systolic and diastolic murmur at the base of the heart, chills and intermittent fever. Gonococci were still numerous in the secretions. The abnormal murmurs disappeared on the tenth day and patient recovered. In another, a fatal case, the autopsy after eight weeks' illness with high, intermittent fever, chills and abrupt changes in the temperature of 4 to 5 degrees C., showed extensive ulcerative endocarditis of the pulmonary valves from which pure cultures of the gonococcus were derived. In one of the 5 cases of endocarditis subsequent to croupous pneumonia, the patient, a woman of 54, had apparently recovered from the pneumonia by the eleventh day, although pneumococci had been found in the blood the seventh day. After five days of almost normal temperature and two days of the prodrome, a severe chill was followed by fever of 40.6 C. and a loud heart murmur was audible above the sternum. The autopsy revealed an ulcerative endocarditis of the tricuspid with enormous thrombotic deposits and fresh suppurative meningitis. Pure cultures of pneumococci from the blood developed 1000 to 2000 colonies in 1 c.c. In 3 other cases the endocarditis followed a non-febrile period of two to five days. The patients were all between 48 and 54 years of age. Bacteriologic investigation of 28 cases disclosed the staphylococcus in 8, the pneumococcus in 9, the streptococcus in 10 and the gonococcus in 1, as the cause of the endocarditis. In the chronic cases, the blood showed the same bacteria each time, after intervals of two to four weeks, the number of colonies ranging from 68 to 450 in one case consecutive to the puerperium, from 98 to 276 in another, consecutive to a mechanical injury of the urethra, and from 75 to 2000 colonies of the streptococcus parvus in a case consecutive to angina. The streptococcus parvus was found six times. Anemic and suppurative infarcts may coincide even in the same organ and consequently do not differentiate any special infection, but if the above-mentioned bacteria are found in the blood, the septic character of the infection is established, while their absence classifies the endocarditis as of rheumatic origin. In genuine rheumatism the investigation of the blood and joint effusions has always been negative, but the symptoms indicate a specific agent. Pseudo-rheumatism may be induced by various germs and complicate numerous diseases, scarlet fever, diphtheria, etc., but has nothing to do with genuine rheumatism. In chronic septic endocarditis the affection commences occasionally with a chill, but more often with merely general depression and fatigue in the limbs. Circumscribed pains are at times noted in the vicinity of the joints, aponeuroses and similar points. The illness of the subject early impresses those around him, but he may resist the increasing prostration until chilliness or severe erratic chills, with violent fever compel him to keep his bed. The pallor, enlargement of the spleen, heart murmurs and general appearance are the only objective signs that can be detected except the frequent retinal hemorrhages.

Rheumatic Exanthemata. M. BEHREND.—Several cases are described to establish Behrend's theory that articular rheumatism—personal or the inherited tendency—induces a predisposition to exanthemata and enanthemata. Multiform erythema exsudativum is frequently accompanied by swelling or pains in the joints. In these cutaneous affections the salicylates are indicated on account of their favorable influence on the rheumatic soil. The tendency to recurrence renders the prognosis unfavorable.

Inexpensive Asepsis in the Operating Room. A. HAMMESFAHR.—By banishing sponges, catgut, silk and wire, great saving in the expense of supplies for the operating room, and also in time, is effected. Gauze takes the place of sponges, and the inexpensive celloidin thread is superior in every respect to catgut and silk, and even to wire. Many dangers are avoided and much time saved if the principle is strictly enforced that the hands are never allowed to come in contact with septic matters. Instruments should be used to handle infected dressings, etc. Hammesfahr adds that he has performed 126 major aseptic operations in the last six months in a single small operating room in which he operates also for phlegmons, empyema, gall-bladder infections, etc., and has not had a single case suppurate.

Remote Results of Extirpation of the Gasserian Ganglion. F. KRAUSE.—Krause reports twenty-seven patients treated for excruciating trigeminal neuralgia by extirpation of the Gasserian ganglion. All were between 47 and 72 years of age, except two who were 30 and three between 41 and 46. In several the neuralgia had lasted for twenty-two years, and suicide seemed the only relief. All have been completely cured, without a twinge of the neuralgia since. The first six cases were operated on in '93. Ligature of the middle meningeal artery requires but a few seconds, while it affords much better chances for success and the avoidance of complications. The length of the operation depends on the hemorrhage—in one case it prolonged the operation for three hours. The average time was one and one-quarter hours, but some were completed in twenty, twenty-five and thirty-three minutes. If the bone is sacrificed, fifteen minutes are saved, and this is important in much debilitated patients. Three patients died, one from collapse in a few hours, an elderly woman, much debilitated and a sufferer from chronic nephritis. The second death occurred six days after the operation, the patient a man of 72 with pronounced arteriosclerosis and irregular heart action which had compelled the postponement of the operation. The wound was healing smoothly and the death occurred from heart failure. No cause could be discovered for the third death which occurred twenty days after the operation, a woman of 72, the wound healing normally. In all the patients a portion of the trigeminus had been previously resected with transient, if any, effect on the neuralgia. The resulting lagophthalmus rendered the condition unfavorable for the later operation and caused trouble in a few cases, but he found that corneal ulcers and even severe hypopyons may finally heal. To prevent paralysis of the lower lid, Krause incises parallel with the fibers of the facial nerve. The cornea has to be protected only for the first few weeks. In several cases neuralgic pains have appeared in the other side, but the only sensory disturbances on the side of the operation are occasional twitchings and itching, with a rare, brief burning sensation. Two patients complained of the absence of sensation in the half of the mouth and tongue as a hindrance to mastication. In one case a mental disturbance was cured by the operation. In all cases in which the neuralgia is of a hysteric or neurasthenic nature Krause refuses to operate. The details of each case are described in full in the article which is concluded from the two preceding numbers.

Queries and Minor Notes.

AIR EXHAUSTION OF PLEURAL CAVITY IN EMPYEMA.

MINNEAPOLIS, MINN., July 23, 1901.

To the Editor:—If W. E. P., of Kansas City, will turn to page 1026, Volume II, Bryant's Operative Surgery, he will find a description of the pleural air-pump apparatus he seeks.

Very truly yours, W. M. BECK, M.D.

OXYDONOR.

STAPLES, MINN., July 25, 1901.

To the Editor:—What is an "Oxydonor?" I know that it is not new. It is being sold by local agents about here, and I have been asked what it is. I know what they say it is, but want to know what it really is. Has it any virtues or is it pure faith cure? I never saw the instrument. Yours truly,

F. H. KNICKERBOCKER, M.D.

ANS.—Dr. N. C. Morse, Eldora, Iowa, in an article in THE JOURNAL of Dec. 1, 1900, page 1404, entitled "Modern Empirical Inventions," exposes the make-up of three quack inventions, the "electropoise," "oxydonor victory" and the "oxygenor king." There are several of these fakes on the market, and the number is rapidly increasing, as the people are still emphasizing the truth of Barnum's oft-quoted statement.

GOD AND THE DOCTOR.

ST. PAUL, MINN., July 28, 1901.

To the Editor:—On page 294 of your issue of July 27, you discuss the authorship of the familiar lines beginning: "God and the Doctor we alike adore." The original Latin epigram which you quote was written by Euricius Cordus, of Simmershausen, in Hesse, who was born in 1486, was professor of medicine in Marburg about 1520, and died in Bremen in 1534. It is known of him that he was an eminent physician and a popular teacher of medicine. He introduced the term "Scharbock" (scorbutus, scurvy) into the German language. His son, Valerius Cordus, was also a successful physician, and was the author of the first German pharmacopeia, the printing and introduction of which into the pharmacies of Nuremberg was authorized by the senate of that city in 1535. The following is still another translation of the epigram:

"Three faces wears the Doctor: When first sought,
An angel's—and a God's, the cure half wrought—
But when, the cure complete he seeks his fee,
The Devil seems then less terrible than he."

An amusing story illustrative of the sentiment expressed in this epigram, in more recent times, is related by Pettigrew: M. Bovart had been attending during a long and sever illness a certain French marquis; one morning during the patient's convalescence, the following conversation took place: "Good day, Monsieur Bovart," said the marquis, "I feel quite in spirits to-day; I think my fever has left me." "I am sure of it," replied the doctor; "your first remark has quite convinced me of it." "Explain yourself," said the marquis. "Nothing more easy," said the doctor. "In the first days of your illness, when your life was in danger, I was 'your dearest Bovart'; as you began to get better I was your 'good Bovart'; this morning I am plain 'Monsieur Bovart'; depend upon it, you are quite recovered." Yours very truly,

BURNSIDE FOSTER, M.D.

Dr. W. L'Heureux Blenkarne sends another translation of the verse to the *British Medical Journal*. This translation was made by Dr. Moxon and printed in his introductory lecture delivered at Guy's Hospital, in 1868. Dr. Moxon's version is as follows:

"God and the doctor they alike adore
Just in the hour of danger and no more,
The danger o'er, both are alike requited:
God is forgotten, and the doctor slighted."

CODE OF HEALTH OF SALERNUM.

MUNCIE, IND., July 31, 1901.

To the Editor:—Can you tell me where I can get Dr. Ordronaux's "Code of Health of the School of Salernum?" C. W. H. K.

ANS.—We do not know the publisher, but believe it was printed for private circulation. Address Dr. John Ordronaux, Roslyn, Queens Co., N. Y.

TREATMENT OF TUBERCULOSIS.

SCRANTON, PA., Aug. 3, 1901.

To the Editor:—Can you inform me concerning the Nordrach treatment for Tuberculosis as spoken of by R. Mander Smyth, in a late edition of THE JOURNAL? R. B. M.

ANS.—The Nordrach method is essentially an open-air treatment with regulated diet, exercise and rest. The method is largely educational, teaching what can be practiced elsewhere. The personality of the superintendent, Dr. Walther, is an important factor.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., July 18 to 24, inclusive:

Frank E. Artand, major and surgeon, Vols., honorably discharged from the service of the United States, to take effect July 31, 1901.

Percy M. Ashburn, lieutenant and asst.-surgeon, U. S. A., from Fort Sheridan, Ill., to duty at Fort Assinniboine, Mont.

Charles N. Barney, lieutenant and asst.-surgeon, U. S. A., recently appointed and now at Key West, Fla., will report for temporary duty to the commanding officer of that post.

William H. Brooks, lieutenant and asst.-surgeon, U. S. A., recently appointed, is relieved from further duty in the Department of California and will proceed to Fort St. Michael, Alaska, for duty at that post.

Charles Y. Browniee, lieutenant and asst.-surgeon, U. S. A., recently appointed, and now at Benicia Barracks, Cal., will report for temporary duty to the commanding officer of that post.

Robert Burns, major and surgeon, Vols., now at Plymouth, N. J., will, upon the expiration of his present leave of absence, proceed to San Francisco, Cal., en route to duty in the Division of the Philippines.

Robert E. Caldwell, captain and asst.-surgeon, Vols., leave of absence granted.

George H. Calkins, captain and asst.-surgeon, Vols., recently appointed, from Fort Meade, S. D., to San Francisco, Cal., en route to the Division of the Philippines.

William H. Chambers, contract dental surgeon, from Montgomery, Ala., to Fort Monroe, Va., for duty at that post.

William D. Crosby, major and surgeon, U. S. A., leave of absence granted.

Robert J. Gibson, major and surgeon, U. S. A., member of a retiring board at San Francisco, Cal.

Abram L. Haines, major and surgeon, Vols., leave of absence granted.

John D. Hall, lieut.-col., deputy surgeon-general, U. S. A., member of a retiring board at San Francisco, Cal.

Edwin P. Hayward, captain and asst.-surgeon, Vols., is honorably discharged, to take effect July 18, 1901.

George P. Heard, lieutenant and asst.-surgeon, U. S. A., recently appointed, and now at Fort McPherson, Ga., will report to the commanding officer of that post for temporary duty.

Lloyd LeR. Krebs, lieutenant and asst.-surgeon, U. S. A., recently appointed, will proceed from Kansas City, Mo., to Fort Leavenworth, Kan., for temporary duty.

Milton E. Lando, lieutenant and asst.-surgeon, U. S. A., now at San Francisco, Cal., is assigned to temporary duty at the Presidio of San Francisco.

Arthur M. Lee, lieutenant and asst.-surgeon, U. S. A., recently appointed, from Marion, Ind., to temporary duty at Ft. Sheridan, Ill.

Franklin A. Meacham, major and surgeon, Vols., having tendered his resignation, is honorably discharged, to take effect July 19, 1901.

John A. Murtagh, lieutenant and asst.-surgeon, U. S. A., recently appointed and now at the Presidio of San Francisco, Cal., is assigned to temporary duty at the general hospital at that place.

Kent Nelson, lieutenant and asst.-surgeon, U. S. A., recently appointed, is assigned to temporary duty in the U. S. General Hospital, Washington Barracks, D. C.

Roderick P. O'Connor, lieutenant and asst.-surgeon, U. S. A., recently appointed, to proceed from Winchester, Va., to Fort Myer, Va., for temporary duty.

Robert M. O'Reilly, lieut.-col., deputy surgeon-general, member of a board at Fort Monroe, Va., to formulate a general scheme of construction and improvement at that post.

Robert U. Patterson, lieutenant and asst.-surgeon, U. S. A., recently appointed, from Baltimore, Md., to Fort McHenry, Md., for temporary duty.

George R. Plummer, captain and asst.-surgeon, Vols., relieved from further duty in the Department of Cuba, and, on the expiry of his present leave of absence, to proceed to San Francisco, Cal., en route to the Division of the Philippines.

Adrian S. Polhemus, major and surgeon, U. S. A., member of a retiring board at Fort Leavenworth, Kan.

Ralph S. Porter, major and surgeon, Vols., leave of absence granted.

Charles Richard, major and surgeon, U. S. A., member of a retiring board at Fort Leavenworth, Kan.

Robert Smart, lieutenant and asst.-surgeon, U. S. A., recently appointed, from New York City, to Fort Monroe, Va., for temporary duty.

Verge E. Sweazey, lieutenant and asst.-surgeon, U. S. A., recently appointed, to proceed from Sabinsville, Pa., to Fort Columbus, N. Y., for temporary duty.

C. L. Sweet, contract surgeon, leave of absence from the Department of the Columbia extended.

Hugh G. Voorhies, contract dental surgeon, now at Mt. Vernon, Mo., will proceed to Governor's Island, N. Y., en route for duty at San Juan, District of Porto Rico.

Eugene R. Whitmore, lieutenant and asst.-surgeon, U. S. A., recently appointed, from Chicago, Ill., to Fort Sheridan, Ill., for temporary duty.

Compton Wilson, lieutenant and asst.-surgeon, U. S. A., is honorably discharged from service as captain and asst.-surg., Vols., only.

Halsey L. Wood, contract surgeon, now at Washington, Conn., to proceed to Seattle, Wash., for duty on the transport *Rosecrans*.

William P. Woodhull, lieutenant and asst.-surgeon, U. S. A., recently appointed, and now at Fort Clark, Texas, will report for temporary duty to the commanding officer of that post.

Appointments, Promotions, Retirements, Etc.,

Of commissioned officers of the Medical Department of the Army.

During the month ending July 15, 1901, the following changes in the status of medical officers of the regular and volunteer forces were reported from the Adjutant-General's Office, War Department.

Washington, D. C. Previous changes of this character were reported in THE JOURNAL, of July 13, 1901:

REGULAR ARMY—APPOINTMENTS.

To be assistant surgeons, with the rank of first lieutenant, June 29:

Henry H. Rutherford, of Missouri.
Charles C. Geer, of Georgia.
Ernest L. Ruffner, of New York.
William H. Brooks, of North Carolina.
Charles N. Barney, of Massachusetts.
Compton Wilson, of Maryland.
John A. Murtagh, of Pennsylvania.
Eugene R. Whitmore, of Wisconsin.
Patrick H. McAndrew, of Pennsylvania.
Charles Y. Brownlee, of California.
Milton E. Lando, of California.
George M. Ekwurzel, of Pennsylvania.
Gideon McD. Van Poole, of North Carolina.
Irvine W. Patton, of Alabama.
William W. Reno, of Michigan.
Carroll D. Buck, of Minnesota.
George H. R. Gosman, of New York.
Conrad E. Koerper, of the District of Columbia.
John H. Allen, of Tennessee.
Robert U. Patterson, of Maryland.
Roderic P. O'Connor, of Pennsylvania.
William Roberts, of ———.
George P. Heard, of Alabama.
Robert E. Noble, of Alabama.
James W. Van Dusen, of Ohio.
Roger Brooke, Jr., of Maryland.
Wallace De Witt, of ———.
Albert B. Henderson, of Michigan.
Robert M. Thornburgh, of New Hampshire.
Robert B. Grubbs, of Virginia.
Edmund D. Shortlidge, of Delaware
Arthur M. Line, of New York.
Verge E. Sweazey, of Pennsylvania.
Matthew A. DeLaney, of Pennsylvania
Horace D. Bloombergh, of Pennsylvania.
John R. Devereux, of the District of Columbia.
Paul S. Halloran, of Pennsylvania.
Kent Nelson, of Minnesota.
Peter C. Field, of New Jersey
Herbert G. Shaw, of California.
Robert Smart, of New York.
Louis Brechemin, Jr., of Pennsylvania.
Lloyd LeR. Krebs, of Iowa.
William P. Woodall, of Texas.
Clement C. Whitcomb, of Maine.

For the purpose of retirement:

Nathan P. Jarvis, late captain, asst.-surgeon, U. S. A., to be asst.-surgeon, with the rank of captain, June 29, 1901.

VOLUNTEERS—APPOINTMENTS

Richard S. Griswold, of Connecticut, to be surgeon, with the rank of major, June 4, 1901.

Frank E. Artaud, of Louisiana, to be surgeon, with the rank of major, June 6, 1901.

Robert E. Caldwell, of Virginia, to be asst.-surgeon, with the rank of captain, June 19, 1901.

Paul Mazzuri, of Louisiana, to be asst.-surgeon, with the rank of captain, June 19, 1901.

Allen J. Black, of Virginia, to be asst.-surgeon, with the rank of captain, July 1, 1901.

PROMOTIONS.

Thirty-eighth Infantry—Captain George L. Hicks, Jr., asst.-surgeon, to be surgeon with the rank of major, May 11, 1901.

Fortieth Infantry—Captain Edward A. Romig, asst.-surgeon, to be surgeon, with the rank of major, May 10, 1901; First Lieutenant William J. Boyd, asst. surgeon, with the rank of captain, May 10, 1901.

HONORABLY DISCHARGED.

Major Samuel T. Armstrong, surgeon, June 30, 1901.
Major Herbert W. Cardwell, surgeon, June 30, 1901.
Major Wilfrid Turnbull, surgeon, June 30, 1901.
Major William B. Winn, surgeon, June 30, 1901.
Major Frank H. Titus, surgeon, June 30, 1901.
Major Henry C. Fisher, surgeon, June 30, 1901.
Major Eugene L. Swift, surgeon, June 30, 1901.
Major John S. Kulp, surgeon, June 30, 1901.
Major Frederick P. Reynolds, surgeon, June 30, 1901.
Major Merritte W. Ireland, surgeon, June 30, 1901.
Major William F. Lewis, surgeon, June 30, 1901.
Major Paul Shillock, surgeon, June 30, 1901.
Major Alexander N. Stark, surgeon, June 30, 1901.
Major Powell C. Fauntleroy, surgeon, June 30, 1901.
Major Charles Wilcox, surgeon, June 30, 1901.
Major Henry A. Shaw, surgeon, June 30, 1901.
Major George W. Mathews, surgeon, June 30, 1901.
Major John Carling, surgeon, July 3, 1901.
Captain James J. Erwin, asst.-surgeon, June 30, 1901.
Captain Charles E. McDonald, asst.-surgeon, June 30, 1901.

DISCHARGED ON ACCOUNT OF MUSTER-OUT OF REGIMENTS.

Major Henry D. Snyder, surgeon, 43d Infantry, June 30, 1901.
Captain Dudley W. Welch, asst.-surgeon, 43d Infantry, June 30, 1901.
Major Joseph T. Clarke, surgeon, 4th Infantry, June 30, 1901.
Major Charles F. Kieffer, surgeon, 48th Infantry, June 30, 1901.

COMMISSIONS VACATED BY NEW APPOINTMENTS.

Major Thos. U. Raymond, surgeon, 40th Infantry, May 10, 1901, by appointment as major and surgeon, U. S. Vols. (act Feb. 2, 1901).

Major Wm. D. Bell, surgeon, 42d Infantry, May 18, 1901, by appointment as major and surgeon, U. S. Vols.

Major Lawrence C. Carr, surgeon, May 31, 1901, by appointment as major and surgeon, U. S. Vols.

Captain Simon J. Fraser, asst.-surgeon, June 14, 1901, by appointment as major and surgeon, U. S. Vols. (act Feb. 2, 1901).

Captain Howard A. Grube, asst.-surgeon, June 17, 1901, by appointment as major, surgeon, U. S. Vols. (act Feb. 2, 1901).

MUSTERED OUT OF THE SERVICE.

Major Abram L. Haines, surgeon, 31st Infantry, June 18, 1901.
Major George L. Hicks, surgeon, 38th Infantry, June 30, 1901.
Major Edward A. Romig, surgeon, 40th Infantry, June 24, 1901.
Captain Wm. J. Boyd, asst.-surgeon, 40th Infantry, June 24, 1901.
Captain Thomas R. Marshall, asst.-surg, 41st Infantry, July 3, 1901.
Lieutenant Edward J. Barrett, asst.-surgeon, 41st Infantry, July 3, 1901.
Major Charles L. Forbush, surgeon, 44th Infantry, June 30, 1901.
Captain Charles M. Galbraith, asst.-surgeon, 47th Infantry, July 2, 1901.
Captain William P. Purnell, asst.-surgeon, 48th Infantry, June 30, 1901.
Major Robert Burns, surgeon, 49th Infantry, June 30, 1901.
Captain William C. Warmsley, asst.-surgeon, 49th Infantry, June 30, 1901.
Lieutenant Joseph H. Carroll, asst.-surgeon, 49th Infantry, June 30, 1901.

Navy Changes.

Changes in the Medical Corps of the Navy for the week ending July 27, 1901:

Asst.-Surgeon E. O. Huntington, detached from the *Newark* when placed out of commission, and ordered home to wait orders.

Surgeon C. F. Stokes, ordered to the *Oregon*, immediately.

Surgeon P. Leach, detached from the *Oregon*, upon reporting of relief, and ordered home to wait orders.

P. A. Surgeon A. Farenholt, detached from the *Oregon*, and ordered home to wait orders.

Surgeon G. T. Smith, detached from the *Mayflower*, when put out of commission, and ordered home to wait orders.

P. A. Surgeon D. N. Carpenter, detached from the Naval Hospital, Chelsea, Mass., and ordered to the *Franklin*.

Asst.-Surgeon B. R. Richardson, detached from the Naval Hospital, Newport, R. I., and ordered to the Naval Hospital, Chelsea, Mass.

Asst.-Surgeon J. B. Whiting, resignation accepted to take effect from August 3, 1901.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended July 27, 1901:

SMALLPOX—UNITED STATES AND INSULAR.

Alaska: Juneau, July 3, 9 cases.
California: Los Angeles, July 6-13, 1 case; San Francisco, July 7-14, 1 case.
Illinois: Chicago, July 13-20, 1 case.
Louisiana: New Orleans, July 13-20, 1 case.
Massachusetts: Boston, July 13-20, 2 cases; Fall River, July 13-20, 1 death.
Michigan: Detroit, July 13-20, 1 case.
Minnesota: Minneapolis, July 7-20, 6 cases; Winona, July 6-13, 1 case.
New Jersey: Jersey City, July 14-21, 2 cases; Newark, July 14-20, 8 cases.
New York: Elmira, July 6-13, 2 cases; New York, July 13-20, 35 cases, 12 deaths.
Ohio: Cleveland, July 13-20, 1 case.
Pennsylvania: July 13-20, Lebanon, 1 case; Philadelphia, 4 cases, 1 death.
Tennessee: Memphis, July 13-20, 1 case.
Utah: Salt Lake City, July 13-20, 1 case.
Washington: Tacoma, July 7-14, 1 case.
Wisconsin: Milwaukee, July 13-20, 1 case.
Philippines: Manila, May 25-June 15, 8 cases.

SMALLPOX—FOREIGN.

Austria: Prague, June 29-July 6, 4 cases.
Belgium: Antwerp, June 29-July 6, 2 cases, 1 death.
China: Hongkong, June 8-22, 4 cases, 3 deaths.
Colombia: Panama, July 8-15, 4 cases.
France: Paris, June 29-July 6, 10 deaths.
Great Britain: Glasgow, July 5-12, 5 cases, 1 death; Liverpool, June 29-July 6, 1 case; London, June 29-July 6, 6 cases.
India: Calcutta, June 15-22, 6 deaths.
Japan: Nagasaki, June 21-30, 1 case.
Italy: Messina, June 29-July 6, 21 cases, 1 death.
Netherlands: Rotterdam, July 6-13, 4 cases.
Russia: Moscow, June 22-29, 11 cases, 1 death; Odessa, June 29-July 6, 2 cases; Warsaw, June 15-22, 6 deaths.
Spain: Corunna, June 29-July 6, 1 case.
Straits Settlements: Singapore, June 1-8, 1 death.
Switzerland: Geneva, June 22-29, 1 case.
Turkey: Smyrna, June 8-15, 1 death.
Uruguay: Montevideo, May 25-June 8, 49 cases, 3 deaths.

YELLOW FEVER.

Mexico: Vera Cruz, July 6-13, 3 cases, 2 deaths.
Salvador: San Salvador, June 20, present

CHOLERA.

India: Bombay, June 18-25, 3 deaths; Calcutta, June 15, 37 deaths.

PLAGUE—UNITED STATES AND INSULAR.

California: San Francisco, July 6-11, 5 cases, 4 deaths.
Hawaii, Honolulu, July 6, 1 death.
Philippines: Manila, May 25-June 15, 57 cases, 43 deaths.

PLAGUE—FOREIGN.

Africa: Cape Town, to June 29, 749 cases, 341 deaths; Maitland, June 9-15, 2 cases; Port Elizabeth, June 9-15, 3 cases; Simonstown, June 9-15, 1 case.
China: Amoy, May 25-June 1, 700 deaths; Hongkong, June 8-22, 306 cases, 303 deaths.
India: Bombay, June 18-25, 62 deaths; Calcutta, June 1-22, 22 deaths.
Japan: Yamanashi Ken, July 5, 1 case.